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Coming Events

Sept. 2, 3, 4, 1955 Northwest Federation of Mineralogical Societies 15th Annual Convention, Yakima, Wash. For information write Box 1156, Yakima, Wash.

Sept. 27, 28, 29, 30, 1955. National Convention of the American Federation of Mineralogical Societies, Shoreham Hotel, Washington, D. C. Dealers contact Arthur Campball, 5904 Cobalt Rd., Washington 16, D. C.

Nov. 5, 6, 1955. Montebello Mineral & Lapidary Soceity Annual Show, Moose Lodge Hall, Montebello, Calif. Robert A. Cartter, Show Publicity Chairman Box 436, Montebello, Calif.

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Virginia Howie

Arandisite - A Unique Specimen From The Namib Desert

by ERNEST W. B. MILLER

College House,
Rhodes University,
Grahamstown, South Africa

Tin is one of the vital metals of modern industry, and for most purposes it has practically no substitute. Its first use by man, to harden copper, marked a particular epoch in his progress in civilisation, the "Bronze Age". Since then, the metal has played an essential part in every great advance in civilisation and without it few metals in industry could be used to their full advantage.

Occurrences of tin ore of commercial importance are very unequally distributed in the world, for example, more than half the world's output of tin comes from the East Indies, concentrated in a relatively small area of the globe.

Tin very rarely occurs in the native state, that is, as a pure metal, but the ores and minerals of tin are many and varied, and these can form a display of their own in any rockhound's collection of which he will be proud. Cassiterite, or tin-stone, is the main mineral of tin, but this in turn can be of many varieties, such as black-tin, white-tin, wood-tin, toads-eye tin, ruby-tin, wax-tin, sparable-tin and needle-tin to name but a few, all being terms applied to different cassiterites, depending upon their appearance and form. Besides these there are also other stanniferous minerals, of which stannite is the best known, but they are all of quite rare occurrence, therefore of no commercial value, but very valuable to collectors for this very reason.

Here we come to the rarest of all tin minerals, a specimen well known in the collector's world but which few have been able to add to their own collections. This mineral is known as Arandisite and comes from South West Africa, a land rich in all stannous minerals, but only in small quantities. This is the only occurrence of Arandisite known in the whole world, and is in the Namib Desert. Because of its unique compo ition and occurrence it is of great scientific interest, and its form, a bright green massive mineral finely veined with quartz, makes for great beauty and a worthy specimen.

Cassiterite, the dioxide of tin, SiO_2, and all primary deposits of tin, are connected with granite intrusions and represent a late phase in the consolidation of the granite mass. The general source of the abundant tin deposits in South West Africa is pegmatites and quartz bodies genetically connected with them.

The Erongo Mountains are a huge granite mass of Karroo System age, and surrounding this an earlier granite belonging to the Damara System. The former is an alkaline granite with no pegmatite, while the latter has pegmatite and a pneumalotilic stage with the associated minerals. This is the great tin-bearing area. But besides tin, the area is rich in many other minerals, such as molybdenum, gold, beryl, etc., and Karibib and Usakos are real old-time mining towns. The whole area is taken over by prospectors and small-holders, and workings in the mountains are mostly for tin and beryllium.

The Author visited this area extensively about 5 years ago, with a quick dash there again two months ago, with a view to collect tin minerals, and here he wishes to give a general description of the Arandisite occurrence for the interest of other rockhounds.

The occurrence is very much off the beaten track and the only way to get it is by jeep or truck. Following the railway-line from Usakos to Swakopmund, the road soon climbs out of the Kahn valley onto the Namib Desert Plateau. One travels west as far as Arandis Siding, from whence the mineral's name, and

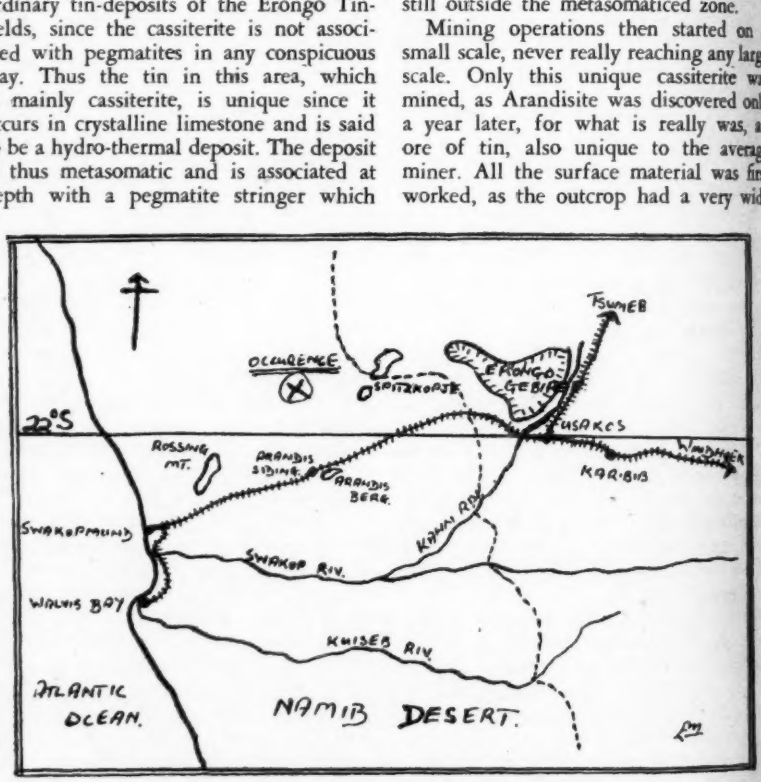
then strike due north into the Desert for about 23 miles to reach the outcrop, which is about 40 miles from the sea. The road is very bad along here and the going difficult. Near the occurrence are a large number of black hills, arranged in long parallel ridges, being made of dolerite in the form of dykes, while the occurrence itself is on the bare, hot plain, with, on the right-hand horizon, a huge inselberg, the Spitzkopje, raising its granitic head above the heat-waves. All there is at the outcrop are a few ramshackle tin huts and some shallow holes in the ground to show that this is where the Arandisite of the Namib was worked.

In 1929 an old German prospector, Herr W. Stiepelmann, first realised that tin was present in the rocks. The deposit exhibits features very distinct from the ordinary tin-deposits of the Erongo Tinfields, since the cassiterite is not associated with pegmatites in any conspicuous way. Thus the tin in this area, which is mainly cassiterite, is unique since it occurs in crystalline limestone and is said to be a hydro-thermal deposit. The deposit is thus metasomatic and is associated at depth with a pegmatite stringer which supplied the solutions for the metasomatic replacement. Graphite occurs as a base up to a depth of 200 feet, outcropping in many places.

It is not surprising therefore that, although the locality was searched for tin on more than one occasion, this rich occurrence was not discovered for a long time. Evidentely no prospector, before Stiepelmann, contemplated the possibility that eluvial boulders, consisting apparently only of limonite and with which the surface is strewn in great abundance, could contain large amounts of cassiterite. Once this fact was ascertained, the locality of the deposits *in situ* presented no difficulty.

This limonite is the altered product of metasomatism too, the original mineral being pyrrhotite, samples of which are still outside the metasomaticed zone.

Mining operations then started on a small scale, never really reaching any large scale. Only this unique cassiterite was mined, as Arandisite was discovered only a year later, for what is really was, an ore of tin, also unique to the average miner. All the surface material was first worked, as the outcrop had a very wide



Sketch-map showing the locality of the occurrence of arandisite

surface area due to intense folding which has brought about a tremendous thickening of the limestone. Quarrying then continued on a small scale, while the Arandisite was worked in exactly the same way and in the same sequence, though is was only found in one small lode.

The occurrences are situated in a broad belt of crystalline limestone which is traversed by a large number of dolerite dykes forming the conspicuous black ridges which were mentioned as characteristic of the landscape in this area. The outcrop of the tin-lodes is indicated by dark eluvial boulders consisting mainly of limonite, quartz and, as indicated by their weight, cassiterite. In the southern workings of this small field, directly associated with the cassiterite, quartz, and the sulphides of iron and copper in fillings and large drussy cavities in the limestone, occurs in one small lode, surrounded by cassiterite, the interesting bright green mineral containing tin, which has been named Arandisite. Genetically it is identical to the cassiterite and is closely associated with it, but chemically and physically it is quite different.

The rock which contains the Arandisite also consists of quartz, oxides of iron, and cassiterite, and the whole is known as Arandisite, though, as will be seen, only the quartz and a green mineral constitute this specimen. The predominant colour is a bright apple green with a waxy to resinous lustre. The streak is nearly white, with a tinge of yellowish green, and the hardness is 5. No crystal forms have been observed. This mineral is marcroscopically massive, but microscopically divided into separate grains and finely fibrous. No definite cleavage is observable, but the fracture is subconchoidal to uneven. In bulk the mineral is translucent to opaque and the S. G. is 3.99.

Optically the mineral is anisotropic and has straight extinction with regard to the length of the fibrous structure. There is no replacement with the cassiterite, and quartz veins this mineral in all directions in minute veins and separate crystals, and often completely surrounds it. It appears that the mineral is a solidified gel which is either decomposing or crystallising along minute fibres to a weakly anisotropic mineral.

From chemical analysis it appears that the mineral is a basic silicate of tin and this in itself is unusual because of the unlikelihood of such a compound of any stability existing in nature. It appears that the silica is an essential constituent of the material, and not present as a mixture.

From the reaction of the mineral, it is not likely that it is a normal silicate of tin and the constitution appears to be:-

$$(3SnSiO_4 \cdot 2Sn0\ (OH)_2) \cdot 2H_2O$$

Only one emplacement of this mineral has ever been found, so nothing can be said with any certainty concerning its character. Very little work has been done as well but the main problem which an investigator is faced with is whether the mineral is actually a compound or a mix-

Photograph 1
A view of the Spitzkopje. These are granitic and contain cassiterite. Hydrothermal cassiterite is only 10 miles away.

Photograph 2
Looking across the Namib at the members of the dolerite dykes weathered characteristically to black hills in this region. Hyrothermal tin found on plain around these hills.

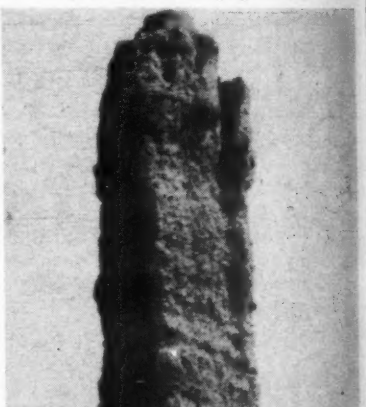
ture with regard to the quartz in the ore.

According to Dana it is "a mixture of two constituents, perhaps colloidal and crystalline phases." Colloidal solutions play a large part in metasomatic replacement, and this is possible, the one constituent crystallising at the time of replacement or, more likely, subsequently.

However, the quartz is always in a constant ratio to the green mineral, which points to it being an integral part of the mineral. The absence of crystal forms cannot be considered as a criterion as in this one deposit there may have been conditions unfavourable to crystallisation and crystals may thus be supressed, and no other deposits are available to be investigated. Also mix-crystals are possible. Until X-ray analysis have been made of the mineral nothing further can be said.

However, work was soon stopped as the mineral had a chemical composition which made it economically unwise to work, and also the lode appeared to peter out. Thus many fine specimens can still be found with a little digging. The hydrothermal cassiterite is still being mined, and lumps weighing up to 1 ton have been found. But the occurrence is deep in the desert, with very bad roads leading to it, while water is now unavailable. This was also one of the reasons for closing down, and today the workings are nothing but a few empty huts and many big piles of empty beer bottles, mute proof that it is thirsty work digging Arandisite in the Namib.

(*Continued on page 391*)



Photograph 3
"Lots's Wife" - A geological phenomena in the Namib Desert, near the tin deposits. It is a saline limestone pillar, a Tertiary remnant, standing in the sand. Compare its size with the two human figures on the skyline at its base.

A DOUBLE-INTEREST LOCALE IN PENNSYLVANIA

By W. H. Hayes
35-22nd St., Irvington 11, N. J.

1. The Mineralogical Interest.

To the person who seeks the hidden and deeper things in life, the finding of, or learning of some unusual locality which combines several interesting phases is an experience which irresistably impresses the seeker with its features and impels him to attempt to get to the bottom of the proposition, and to inform others of his findings so that they too may enjoy the knowledge and the experience involved.

In the great state of Pennsylvania, a portion of which is Lehigh Co. and particularly the region extending from Durham westward to about Kutztown, the ground contains the necessary material and circumstances to make it worthy of the time and study spent in investigation, as well as collecting the mineral specimens which demonstrate natural forces and laws. It also demonstrates the life and activities of the prehistoric men who uncovered these materials and adapted them by the application of their genius to their needs in the way of stone weapons, tools, etc. Thus the double-interest is brought about.

The formation and deposition of the materials in question are naturally the first things to consider. Said materials belong to the great quartz family of minerals and were probably formed originally from a silica gel. They comprise the varieties having names to identify them such as massive quartz, quartz crystals, chalcedony, chert and jasper, and the forms of these are nearly as diversified as their varieties. The deposition of the quartz minerals in their present location is not known by the writer, but as there seems to be no original ledge or large mass in place it is likely that it was deposited by some means such as cataclysmic shifting of the earth's crust or transportation by glacial ice or icebergs, and at the present time is found as boulders and chunks, both large and small, mixed with sand and gravel.

The branch of the quartz family named jasper dominates the scene, and occurs as a hard compact material, having perfect conchoidal fracture, as illustrated; and embrace; all shades of yellow, brown, red, and even blue and black colors. As far as is now known green jasper has not been found here. In some blocks of the jasper several colors may be mixed together. There are many combinations of varieties and colors which make them very interesting, with new ones turning up during every visit. One quite frequent combination is that of botryoidal chalcedony on compact jasper in which the chalcedony is either white or pale blue. Another is of drusy quartz crystals on jasper, and in infrequent cases there is a layer of chalcedony on jasper with quartz crystals topping the greenish chalcedony. One specimen in the writer's collection has the foregoing combination with an added metallic-like coating on the quartz crystals. Quite probably the metallic coating is limonite, for limonite, botryoidal in form, is found here often. It is black and glossy and is usually found to be formed on a brown matrix.

Several other combinations of colors may be mentioned, namely, a thin coating of blue chalcedony on black jasper, a coating of delicately shaded pink crystals on a pastel gray and pink altered jasper, a specimen of beautiful reddish translucent chalcedony resembling carnelian, a coating of what appears to be red drusy quartz crystals on altered jasper but which really is transparent crystals on a red undercoating of chalcedony, a somewhat purplish chalcedony on brown jasper and a pink massive quartz which is not vitreous in luster. All of these varieties and combinations lie in the ground waiting for us to gather them in to enhance our collections and furnish material for study and enjoyment.

Here, in the town of Vera Cruz particularly, the lapidarist may also collect the colorful jasper etc. for his favorite hobby of cutting and polishing.

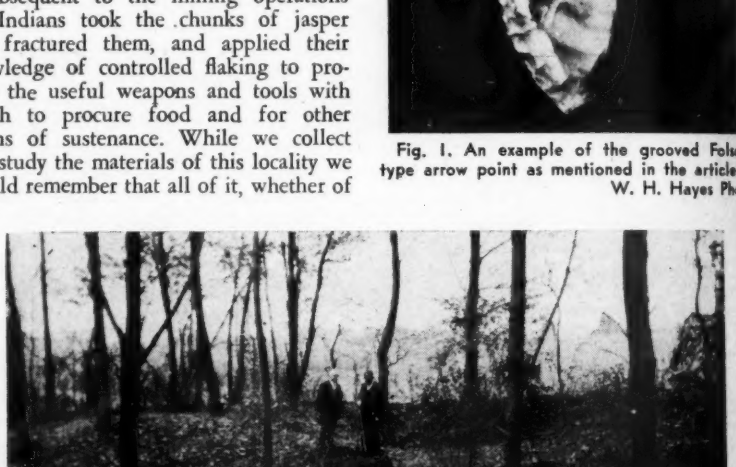
2. The Archaeological Interest

While we are intrigued with the mineral deposits which the Creator has caused to be placed in the earth for our edification, the study and understanding of them is only half of the story to be told anent this particular locality in Pennsylvania. The other half is the relating of the ways in which Stone Age men took advantage of the materials freely provided, and worked the stone itself out of the ground, which, having been done, left deep pits that are now to be seen as they were in prehistoric days except for the vegetation which has grown up during the last few hundred years. Some of the pits are as much as 20 feet deep and 50 feet across at the top.

Subsequent to the mining operations the Indians took the chunks of jasper and fractured them, and applied their knowledge of controlled flaking to produce the useful weapons and tools with which to procure food and for other means of sustenance. While we collect and study the materials of this locality we should remember that all of it, whether of the mineralogical or archaeological interest, was broken down by them, and also that they spent their time and energy on it little thinking that we would ever be interested in collecting and studying it.

Over many acres in area the ground is filled with flakes, rejects, partially-made implements and broken pieces of jasper, quartz and chert. The writer has confined all of his research to the surface findings so far, and what could be found at some

Fig. 1. An example of the grooved Folsom type arrow point as mentioned in the article.
W. H. Hayes Photo



W. H. Hayes Photo

Fig. 2.

One of the pits in the woods where the jasper was mined by the Indians — Vera Cruz, Penn. The pit is 20 feet deep and is the largest one at the location.

depth is not known as yet. All of the tricks and science of stone flaking were practiced here as is shown by the succession of operations which brought the rough block of stone down to a finished artifact. On some of the pieces which would otherwise by only mineral specimens there can be found a cone, or chipped edge, or a hollow where a half-cone was removed.

To do all the fracturing and flaking that was necessary to carry on all this industry for as long a time as it seems was essential for so great a volume of remains required many hammer stones, and so they are quite plentiful. They are mostly made of tough quartzite, albeit a few are made of the native jasper. Most interesting are the hammers that show a great deal of wear from actual use, and all of the wear on the majority of them has been around the peripheries of them as if they had been turned around in the same direction in the hand all the time. The work done on some of the blocks of jasper was carried to the point at which it was proven that it was useless to go further, then the remainder was discarded; inadvertantly, of course, for us to decipher. We marvel at the skill involved in making fine stone implements, and we know comparatively little of the actual stone-in-hand processes required to perfect the article desired. It is a science; or art, if you like.

It appears that a small proportion of the final finishing of arrow points, spear points, knives etc. was carried out here, for whole and finished artifacts are not plentiful. Those that are finished are usually nicely made, and are of the better quality of compact jasper. A noticebly common type of arrow point is the bifurcated one. After extensive examination and comparison of many pieces it has turned out that there are a goodly number of scrapers, and a few projectile points that are the counterparts of the Folsom culture specimens from Colorado and New Mexico, and if these were placed with them could not be distinguished from them by one who had not seen them beforehand. These projectile points have the typical grooves, barbs, ridges etc. which characterize the Folsom relics.

In the surrounding country for distances up to 100 miles from the mine site in the little town of Vera Cruz, the source of the raw material herewith delineated, identical artifacts and flakes from their manufacture, and now and then a rough chunk of the stone can be found. Such a distribution came about, no doubt, because the tribe whose industry this was either one with the surrounding peoples or friendly enough to encourage exchange with others in more distant sites.

So we have here at once the mineralogical and the archaeological material with which to build up our collections and increase our knowledge.

Editor's Note: In a letter from Mr. Hayes is this paragraph: "I have visited the jasper site in Vera Cruz many times and hope to do so again this year, for it is becoming smaller because of some home building on part of the site. The present owner is willing that collectors should go there if permission is asked.

---

5 year renewal!

Editor R&M:

Please renew my subscription for ROCKS AND MINERALS for a period of 5 years. Enclosed is money order for $15.00

Ted Riech
4001 Sand Hill Rd.
May 2, 1955 Springfield, Ill.

Muscatine Agate Beds closed to Public!

Editor R&M:

I think it would be a good idea if you would write this up in your next issue. It would save a lot of touring Rock-Hounds much grief that come here to the famous Muscatine gravel beds trying to find some of the beautiful Lake Superior Agates which are quite plentiful. Some of the larger clubs have abused this privilege by coming here in big gangs without permission and causing some vandalism. Now it is definitely forbidden and all treaspassers are beng prosecuted. The grounds are posted and also the following notices in large type are being run in the local newspaper. "NOTICE" positively no trespassing. Property will be patrolled, including Sundays and all holidays. All violators will be prosecuted. Automatic Gravel Products Co., Muscatine, Iowa."

However, Agates may be purchased from the employees at an exhorbitant price—what is this, another petty racket? Already, I have had to get two touring Rock-Hound families out of trouble as I felt sorry for them. I think you should warn others through your fine publication.

Irving W. Hurlbut
R.R. 6.
July 2, 1955 Muscatine, Iowa

PECOS VALLEY "DIAMONDS"

J. L. Albright
R. M. Bauer, Jr.

During a reconnaissance trip down the Pecos River Valley of New Mexico in 1583, the Spanish mining man Don Antonio de Espejo first noted the occurrence of the quartz crystals which have since become popularly known as 'Pecos Valley Diamonds." His report dealt primarily with metals and more useful minerals but also listed the different kinds of quartz that he found.

No use seems to have been made of these attractive little stones, decorative or otherwise, by historic or pre-historic Indian tribes, although some local people refer to them as "Indian Diamonds". Present-day interest centers in using the crystals either by themselves or in jewelry, ashtrays, lamps, etc., as souvenirs from the Pecos Valley region.

W. A. Tarr[1], in 1929, described the occurrence at Acme in Chaves County, and, in the same year, together with J. T. Lonsdale,[2], described the pseudo-cubic form near Artesia in Eddy County, New Mexico. As far as the authors can learn in the present study, there has been no comprehensive report written on the subject from the viewpoint of the mineral collector, with the consequence that only a limited number of mineral hobbyists have ever heard of the crystals.

In some areas along the Pecos River Valley, when the sun's rays are slanted, the innumerable brilliant sparkles give the impression that the desert is literally paved with "Diamonds." However, close examination shows that for the most part these are but broken bits of crystals, small, or imperfect ones. Only a small percentage are large and perfect enough to be attractive to the collector. These pieces and crystals of quartz are concentrated on flats where torrents of water rushing down the arroyos during the infrequent rains are suddenly slowed and drop their load. Desert winds then strip the lighter sand away leaving the crystal faces exposed. Because of deep weathering, crystals in the matrix are seldom found.

The "Pecos Valley Diamonds" weather out of gypsum beds included in the Permian Whitehorse group. This gypsum was deposited by the evaporation of water from the ancient Permian sea that was trapped in lagoons behind the great Capitan barrier reef. It is in the massive limestones of this fossil barrier reef that Nature has carved the Carlsbad Caverns.

The principal outcrop area of the crystal bearing strata is along the course of the Pecos River in New Mexico from just north of Dunlap in De Baca County, across Chaves County, to just south of Artesia in Eddy County. This is a north-south distance of more than 100 miles; the width of outcrop varies from a mile or two up to 20 miles. In addition, similar small quartz crystals are found in cuttings from oil well borings penetrating these beds at depths of 3500 feet some 65 miles to the east in Lea County, New Mexico.

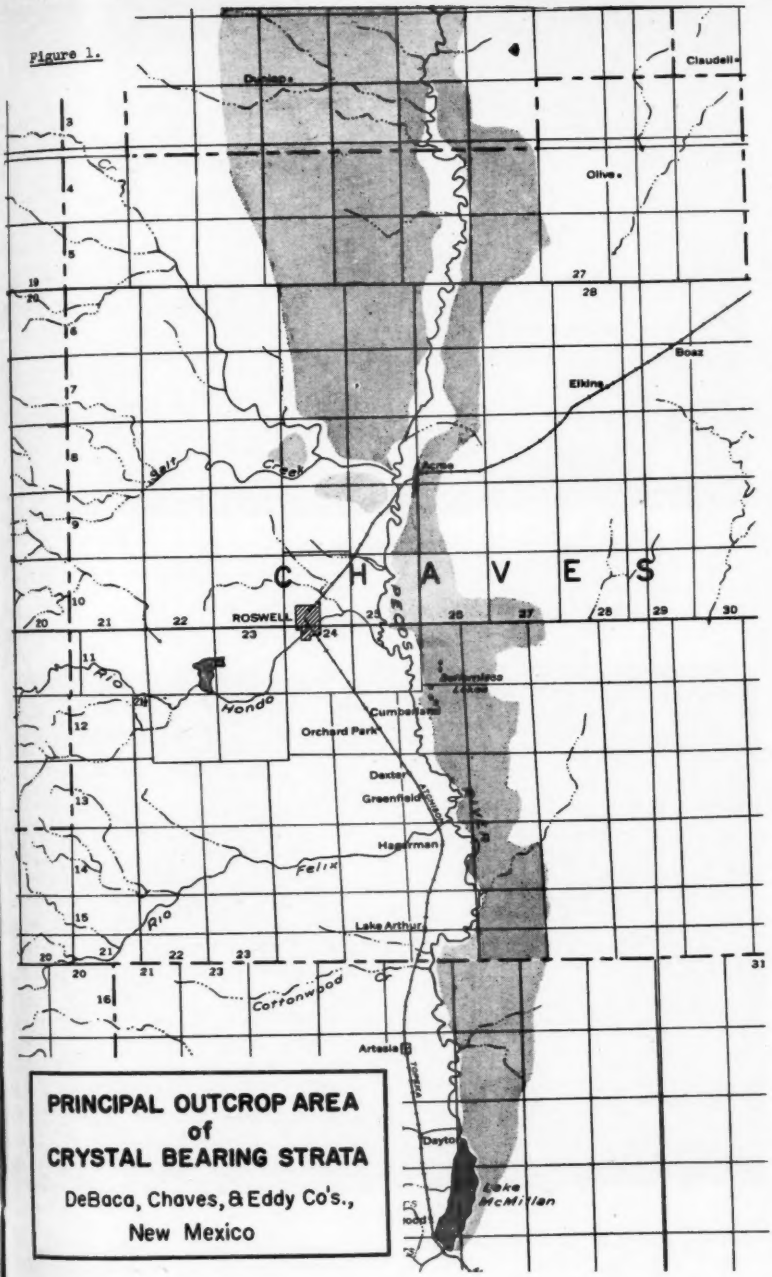
Gypsum inclusions in the quartz crystals are the rule, and sometimes the quartz is only a thin shell over a core of gypsum. This, however, does not detract from the perfection of the quartz form. The included gypsum and other impurities may have served as nuculei for crystal growth. As found in the matrix, the crystals are completely surrounded by granular gypsum without evidence of attachment. There are no mineralized veins or other evidence of fissures or openings which would have allowed the replacement of the gypsum by circulating solutions. All this, together with their widespread occurrence, suggests the probability that the quartz crystallized during the precipitation of the gypsum strata.

The majority of "Pecos Valley Diamonds" occur as doubly terminated hexa-

[1]Tarr, W. A., *Doubly terminated quartz crystals occuring in gypsum, American Mineralogist,* vol. 14, 1929, pp. 19--25, 3 figs.

[2]Tarr, W. A., and Lonsdale, J. T., *Pseudocubic quartz crystals from Artesia, New Mexio,* American Mineralogist, vol. 14, 1929, pp. 50-53, 1 fig.

Figure 1.


Claudell
Dunlap
Olive
Boaz
Elkins
Salt Creek
Acme
C H A V E S
ROSWELL
PECOS
Hondo
Orchard Park
Cumbaland
Dexter
Greenfield
Hagerman
Felix
Lake Arthur
Cottonwood
Artesia
Dayton
Lake McMillan
PRINCIPAL OUTCROP AREA
of
CRYSTAL BEARING STRATA
DeBaca, Chaves, & Eddy Co's.,
New Mexico

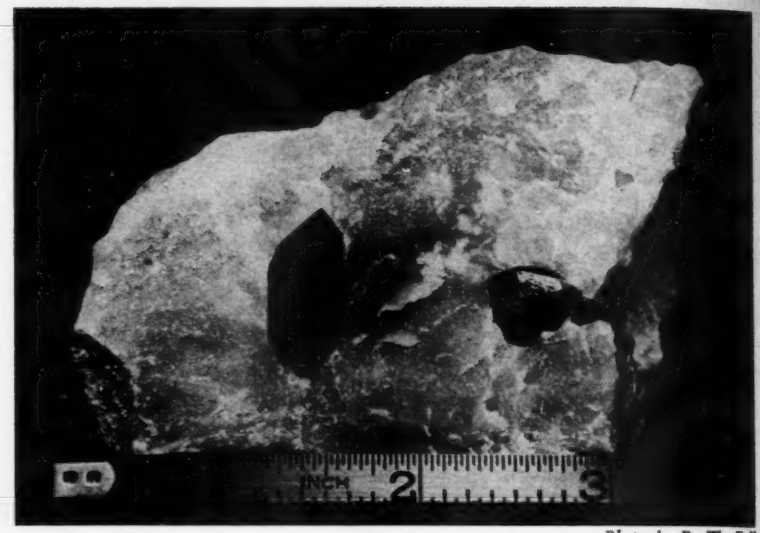


Photo by R. W. Fall

Figure 2.

Quartz crystals in gypsum matrix; near Dunlap, New Mexico. Magnification 1½ X. (Note tiny octahedral dolomite crystal above the "3").

Photo by R. W. Fall

Figure 3.

Quartz crystals; Pecos Valley region of New Mexico; upper-left, typical doubly terminated hexagonal prism; upper-right and lower-right, bipyramidal crystals; lower-left bipyramidal crystal with trace of hexagonal prism. Magnification 4 X.

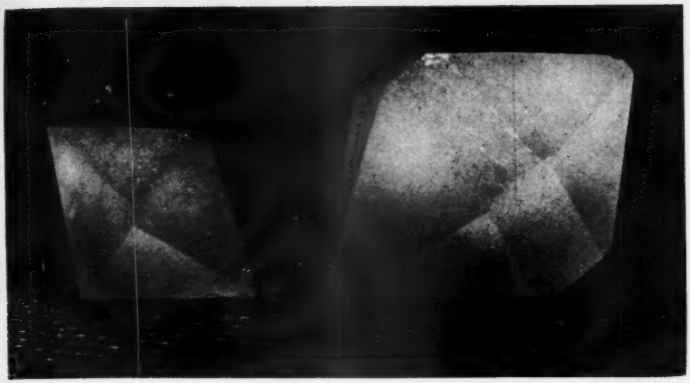


Photo by R. W. Fall

Figure 4.

Different view of those shown in upper-right and lower-right of Figure 3. Magnification 4 X.

Photo by R. W. Fall

Figure 5.

Pseudo-cubic quartz crystal; near Artesia, New Mexico. Magnification 4 X.

gonal prisms, both singly and also intergrown. Although common in high temperature (beta) quartz, the bipyramidal form is unusual in low temperature (alpha) quartz—nevertheless, well-developed bipyramidal "Diamonds" are found at several Pecos Valley locations. Rarely, one rhomb predominates and then the crystals have a cubic aspect.

Although generally small, crystals up to several inches in length are known. The maximum when it comes to perfection in crystal form, seems to be somewhat less than an inch—those smaller are usually more perfect, while those larger tend to become distorted by oscillatory combinations.

Some of the "Diamonds" are semi-transparent but the majority are translucent to opaque. They vary from colorless to white, pink, yellow, orange, red, green, brown, and black shades. The coloring is due to small amounts of iron and/or manganese oxides, organic matter, and other contaminant material.

Associated minerals include euhedral forms of pseudo-octahedral dolomite and pseudo-hexagonal aragonite crystals. These are not as plentiful as the quartz crystals and do not withstand the severe weathering conditions as well. Consequently, they are not found in placer deposits like the more resistant quartz. The dolomite crystals are usually quite small but do measure up to three-quarters of an inch at one locality. Aragonite triplets an inch or more across occur at several places.

The occurrence of such fine doubly terminated quartz crystals in gypsum appears to be unique to the Pecos River Valley of New Mexico. A high degree of crystal perfection and the variation in size, form, and color make the "Pecos Valley Diamonds" interesting specimens to collect and study.

A "Square Iron Rose" from Franklin, N. J.

by

John S. Albanese, P.O. Box 221, Union, N.J.

Franklin, N.J., is noted for its many rarities in the field of mineralogy. Hematite, showing rhombohedral parting, is noted at no other locality in the world. But when this peculiar type of hematite is found with repeated twinning on the rhombohedron so that it appears as an "iron rose", it is truly a most unusual rarity. The illustration shows this twinning was due to crystal growth and not to interference. The matrix is massive yellow garnet with a little magnetite. The hematite with rhombohedral parting is found throughout the specimen. The size is about 2 x 4 x 2 inches. It was found in a collection recently acquired.

The writer was convinced this was most unusual at Franklin, N.J., not having noted this occurrence in literature nor in the many collections of Franklin minerals examined over the years. When shown to Dr. Clifford Frondel, of Harvard University, he agreed with the writer that this was the only known specimen observed to date. And as the writer believes that such a rarity should be preserved so that posterity may be awed by the marvels of Franklin, N.J., he has donated the specimen to Harvard University.

One should not be surprised if a gold plated dinosaur egg should next turn up at this now extinct locality. The writer's only regret is that he was not born fifty years earlier, at a time when "pickings" were very good at this famous locality. (See photo of this unique specimen on front cover).

Will be with us for a long time!

Editor R&M:

Rock and Mineral collectors can, in a pinch, get along without R & M, but not so well. I like it very much and must continue as long as I can read and enjoy rocks and minerals.

Geo. C. Morris
1805 University Ave.
June 26, 1955 Madison 5, Wisconsin

90 MINERALS FROM 1 CONNECTICUT HILL

By Richard Schooner
P. O. Box 215
East Hampton, Conn.

Collins Hill, in the town of Portland, undoubtedly represents the most remarkably mineralized area, of its size, in southern New England. The hill is not especially large, but several different formtions are present, and, very fortunately for collectors, a considerable amount of work has been done on the giant pegmatite at the summit. The Strickland Quarry is enormous, consisting of an open pit and extensive chambers. The Schoonmaker Mine is actually a part of the same subterranean system, so the author treats it as a northern continuation of the Strickland Quarry. The accompanying map should furnish whatever geographic information the reader might care to have.

The author has been specializing in Collins Hill minerals for more than a decade, and, living within walking distance of the locality, he has been able to visit it on perhaps a couple of hundred occasions. His collection has been kept within reasonable limits, but he still has specimens of nearly all the minerals which are known from the Strickland Quarry and the immediate vicinity. Since no existing article gives anything like a complete list of the minerals which are found at Collins Hill, the author is anxious to get this compilation into print. A couple of earlier attempts met with failure, principally because the articles became too long for publication in the available space. Therefore, he is contenting himself, in this particular case, with merely providing an outline of the facts. A more detailed account will ultimately be produced in separate form.

ACTINOLITE is a very abundant contact mineral, with large blocks of coarsely crystalline material, of a dark green color, being available for study on the Schoonmaker dump. It can be seen in situ at the natural waterfall in Carr Brook, at the north side of the hill.

ALBITE has been quarried and discarded in huge amounts. The variety cleavelandite, occasionally of a greenish or bluish color, is commonly associated with lithium minerals, and with columbite and manganapatite. A granular form is also present.

ALLANITE was reported from Collins Hill by Schairer, but it seems to be rare. The author of this article has not observed it at the locality.

ALMANDITE is a common garnet, and a few gemmy crystals have come from sheets of mica. The massive garnet, so frequently associated with manganapatite, at the Strickland Quarry, may be a combination of the almandite and spessartite molecules, though accurate information is lacking.

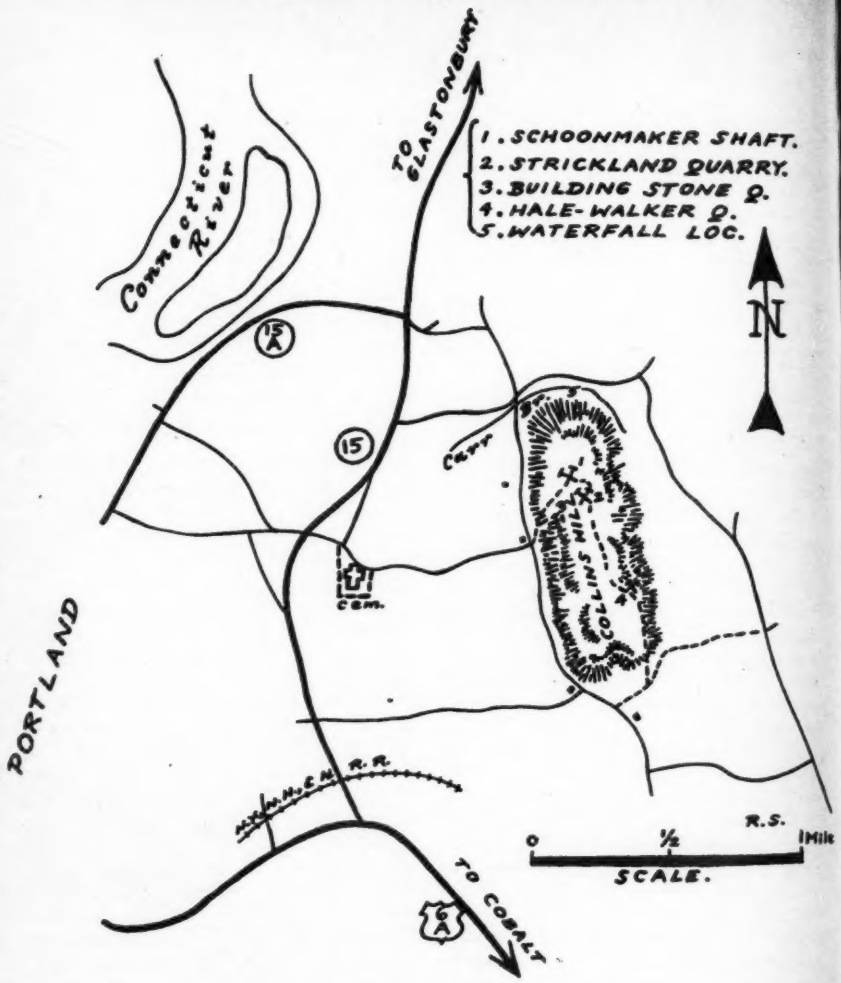
AMBLYGONITE used to be fairly abundant, and good material came out of an exposed vein in the bottom of the Strickland Quarry, during the summer of 1954. The associated minerals are always lepidolite, spodumene, colored tourmaline, and cleavelandite. Some crude crystals, up to 3 inches ore more in diameter, have been collected. Several tons of amblygonite were removed at one time, prior to 1940.

ANGLESITE was noted, by the author, as a thin grayish coating on galena which had been exposed to much weathering on the oldest of the Strickland Quarry dumps. The matrix, in his one good specimen, is a mixture of secondary albite and gray lepidolite.

APATITE crystals, in a variety of colors, including white, green, blue, lavender, and pink, used to be found in cavities at the Strickland Quarry. The usually fluorescent green variety, manganapatite, occurs in large amount at certain places in the pegmatite. Tons of it were removed during the activity in 1953. Once in a while, a brown and green zoning can be observed.

ARAGONITE, as thin coatings on other minerals, can occasionally be found at the Strickland Quarry. The specimens are invariably mediocre.

ARSENOLITE has been noted, by the author, as yellowish powdery incrustations on decomposed arsenopyrite at the Strickland Quarry. One rather large mass of



the unusual material was taken out of the pegmatite which adjoins the schist in the cut above the main pit. Pyrite is associated, in all the specimens.

ARSENOPYRITE crystals, of the finest quality, though of small size, are rarely collected from the pegmatite at the Strickland Quarry. The author has several specimens, showing the mineral in a variety of matrices, and he saw the remains of a 1 inch crystal, in the wall of the aforementioned cut.

AUTUNITE was evidently rather plentiful at the Strickland Quarry, years ago. The author has gathered a few lean examples of the mineral, associated with uraninite, uranophane, and cyrtolite.

BERTRANDITE, while a rare mineral, appears to have formed on a comparatively large scale in some parts of the Strickland Quarry, always as a replacement of beryl. Groups of distinct crystals, and

reticulated platey aggregates, up to several inches in diameter, have been collected. The color is white, and the crystals are lath-shaped.

BERYL, of many colors, has come from the Strickland Quarry, mostly as sizeable rough masses. A few tons of such beryllium ore were removed, from the lowest level of the pegmatite, in 1953. Excellent yellow, green, blue, and pink crystals, many of gem quality, used to be found in the richer sections of the dike. The author has seen perfectly white beryl, too. Attractive little blue prisms can still be obtained from the dump of the old Hale-Walker Quarry, on the other end of Collins Hill.

BIOTITE is a very abundant mica in the Strickland Quarry pegmatite, rendering much of the associated feldspar unsuitable for ceramic purposes. It is sometimes interlaminated with muscovite.

BISMITE was reported from the Strickland Quarry, many years ago. The author presumes that it was derived from the alteration of bismutite, as at the Case Quarries in the same town.

BISMUTHINITE should be fairly easy to find in such a rich and complex pegmatite, but the author has not seen it at Collins Hill. It was definitely ascribed to the locality, 2 or 3 decades ago.

BISMUTITE is another of the minerals which were attributed to the Strickland Quarry by earlier writers. It probably came from only one section of the pegmatite. A solid mass of it, at Wesleyan University, evidently originated there.

CALCITE used to be very common, in a considerable variety of forms, in both the pegmatite and schist of the Strickland Quarry, especially at the Schoonmaker shaft. Tan and yellow crystals, up to an inch or more in diameter, accompanied pyrite, fluorite, albite, and quartz in cavities and seams. Fluorescent white calcite can be found, as small cleavages, among the contact metamorphic minerals of the hill, and at the waterfall locality below it.

CHALCOPYRITE is usually intergrown with pyrrhotite in the Strickland Quarry quartz veins, but it is seldom seen as more than traces.

CHLORITE GROUP members, representing alterations of biotite, almandite, and other minerals, are found at Collins Hill, in the pegmatite and the country rocks.

COLUMBITE has always been common at the Strickland Quarry, mostly as parallel groups of tabular crystals in cleavelandite. Many specimens were collected on the dump which resulted from the 1953 activity. Manganapatite and black tourmaline are normal associates.

COOKEITE specimens, removed from the Strickland Quarry during 1953, are virtually solid masses of bright yellow fine-grained material. Some pieces were seen to be as much as 4 or 5 inches thick, the mineral having occurred as a lining in a long cavity or series of cavities. Cookeite was abundant in the old days, when the lithium-rich parts of the pegmatite were being worked for feldspar. Associated minerals are quartz, albite, colored tourmaline, spodumene, bertrandite, and pyrite.

CORDIERITE was noted in a single specimen of marginal schist from the Strickland Quarry, by one of the early writers.

CRANDALLITE, as microscopic crystals associated with bertrandite, has been reported from the Strickland Quarry by Mr. Gunnar Bjareby.

DICKINSONITE has often been found as greenish inclusions in lithiophilite at the Strickland Quarry. Little scales of the rare phosphate are seen on a few specimens.

DIOPSIDE is extremely common as a contact mineral at Collins Hill. It has a light green color, and is intergrown with actinolite and grossularite. Large blocks of the tough material can be dug out of the Schoonmaker dump, and much of it can be observed in the bed of Carr Brook at the site of the natural waterfall. Crystals are occasionally found.

EOSPHORITE is ascribed to the Strickland Quarry by some report which the author has seen, but he cannot recall which one it might be. The mineral probably occurs as very small crystals with other phosphates.

EPIDOTE, while not generally known from Collins Hill, does occur, though rather sparingly, at the old Hale-Walker Quarry. The author has collected it as granular masses and as little crystals in quartz, both from the hornblende-bearing gneiss which is the country rock in that section.

FAIRFIELDITE, or possibly messelite, is associated with other phosphates in one specimen from the Strickland Quarry. The partly crystallized white material was collected by the author in 1947.

FLUORITE crystals, up to more than an inch in diameter, used to be common at the Strickland Quarry, when the richer portions of the pegmatite were being worked for feldspar. The crystals, of white, yellow, green, and purple colors, were associated with albite, quartz, calcite, asbestiform tourmaline, and other minerals. Poorer specimens can still be obtained from the dumps.

GALENA, which is a rare mineral in pegmatites, has often been found at the Strickland Quarry by the author. His specimens are mostly of small size, but they show galena in close association with lepidolite, lithiophilite, spodumene, amblygonite, albite, manganotantalite, green tourmaline, and yellow sphalerite.

GOETHITE is frequently seen as thin black coatings on schist and pegmatite, especially in the small cut which adjoins the main section of the Strickland Quarry. Inclusions between sheets of muscovite are also found.

GOSLARITE may be the friable bluish-white or greenish-white alteration of sphalerite, occasionally noted on the older dumps of the Strickland Quarry. Then, too, it might be a form of smithsonite, produced by the action of carbon dioxide in the atmosphere. The amount is small.

GREENOCKITE was discovered at Collins Hill by the author, about ten years ago. Little was seen, and only one example was collected. The mineral consisted of bright yellow coatings on sphalerite, from the cut above the Strickland Quarry.

GROSSULARITE is a common mineral in the masses of contact metamorphic rock on the Schoonmaker dump. Tiny crystals occur at the waterfall locality. Pale orange garnet, which is rarely encountered in the pegmatite, associated with calcite and tourmaline, may be the essonite or hessonite which has been reported from the Strickland Quarry.

HEMATITE, as rouge-like coatings on mica schist, is abundant in the cut which is located above the main part of the Strickland Quarry.

HORNBLENDE is a constituent of the dark gneiss which outcrops at several places on Collins Hill, especially in and around the old Hale-Walker Quarry.

HUREAULITE has often been attributed to the Strickland Quarry, and the author believes that he has collected several specimens. They exhibit dark reddish-orange spots in lithiophilite.

IDOCRASE may be the mineral which is present, as tiny brownish prisms, in the granular wollastonite of the Strickland Quarry. The material needs further study.

ILMENITE was described from the Strickland Quarry, by the editor of this magazine, and the present author has noted a few little plates in calcite-bearing schist from the vicinity of Carr Brook Falls.

KAOLIN is an alteration product of the feldspars, and, as such, is widespread in its occurrence. The author has found some chalky masses, in association with calcite and pyrite, at the Strickland Quarry.

KYANITE crystals are common, at the contact between the Bolton schist and the Maromas gneiss, above the old building-stone quarry on Collins Hill. Outstanding specimens are seldom procured, nowadays, because weathering has taken its unfortunate toll.

LEPIDOLITE has always been abundant at the Strickland Quarry, and, at this time, a concentration of the mineral, amounting to at least several tons, can be seen in place at the bottom of the pit. The color is often of the finest purple. Associated minerals are cleavelandite, quartz, spodumene, amblygonite, tourmaline, and microlite. Small sheets have rarely been found.

LIMONITE, of an earthy variety, is present, as stains or coatings on other minerals, at the Strickland Quarry.

LITHIOPHILITE is seldom seen at the Strickland Quarry, now, but it was formerly obtained in excellent specimens. The author has collected a few masses which possess a beautiful orange color. Lithiophilite is usually associated with spodumene, black tourmaline, columbite, manganapatite, lepidolite, cleavelandite, and quartz.

MAGNETITE crystals, up to an inch in diameter, are common in the pegmatite of the old Hale-Walker Quarry. They are invariably octahedral, with step-like faces. Inclusions are often noted in muscovite at the Strickland Quarry.

MANGANOCOLUMBITE grades into manganotantalite at the Strickland Quarry, although the latter molecule predominates.

MANGANOTANTALITE specimens, of exceptional quality, have come from the Strickland Quarry. The author was lucky enough to collect several bright red cleavages, and one group of parallel crystals, during the summer of 1954. The strikingly beautiful material was embedded in quartz, amblygonite, and cleavelandite. Yellow microlite was closely associated.

MELANTERITE, as very fragile grayish crystals, can be seen on a specimen of decomposing pyrite which the author keeps in an air-tight bottle. Sulphur is associated. The material came from the Strickland Quarry pegmatite.

MICROCLINE is a very abundant feldspar at Collins Hill, and immense crystal surfaces are visible in the walls of the Strickland Quarry.

MICROLITE is fairly common at the Strickland Quarry, mostly as broken black crystals in lepidolite. They are of the uranian variety. Yellow crystals are rarely embedded in manganotantalite.

MOLYBDENITE, as little crystals and shapeless scales in vein quartz with pyrrhotite and chalcopyrite, is occasionally found at the Strickland Quarry. It is more rarely seen with diopside and grossularite at the waterfall locality.

MONAZITE has been described as occurring in excellent specimens at the Strickland Quarry. The author, himself, has never seen it at Collins Hill, although he has collected a fine crystal at the Andrews Quarry in the same town.

MONTMORILLONITE is frequently encountered, as soft pink masses, in the old Strickland Quarry dumps, where spodumene has decomposed. All of the montmorillonite is crumbly, and good specimens are difficult to secure.

MUSCOVITE has been mined in enormous amounts at the Strickland Quarry, and, even now, the reserve is probably considerable. However, it is not sufficiently free of metallic oxide inclusions to suit current demands. Some of the "books" of mica are of great size.

NATROLITE, or a similar mineral, occurs as tiny white fibers, implanted on microcrystallized epidote, in seams of the granular massive material at the Hale-Walker Quarry. The author made the discovery about three years ago.

NATROPHILITE is probably a very rare component of the Strickland Quarry pegmatite. Lithiophilite, from there, has distinctly yellow zones, which seem to fit the description of that related phosphate.

OLIGOCLASE, or one of the other albite-anorthite gradations, can be assumed to comprise a good part of the contact metamorphic rock, mostly a mixture of diopside and actinolite, at Collins Hill.

OPAL, of the incrusting white variety hyalite, is fairly common at the Strickland Quarry, but not in especially fine examples. It has a good green fluorescence under short-wave ultraviolet light.

ORTHOCLASE is common at the Strickland Quarry, although the principal feldspar of the locality appears to be microcline or microcline-perthite.

PICKERINGITE used to be found in magnificent specimens at the small cut above the main part of the Strickland Quarry. Water from the adjacent Schoonmaker shaft, in flowing over a ledge of schist, decomposed the sulphides and mica,

producing this hydrosoluble sulphate in limited abundance when the pumping was halted for a while. It is still seen at times.

PSILOMELANE is evidently present in the mica schist near the pickeringite locality. Small veins of an earthy black material have been noted there. Further study is required.

PYRITE crystals, up to about an inch in diameter, though they were usually no more than a quarter of that, used to be very common in cavities of the Strickland Quarry pegmatite. They were implanted on albite crystals, with accessory calcite, fluorite, and betrandite.

PYROLUSITE, as an alteration product of lithiophilite and rhodochrosite, and probably also of spessartite garnet, is not uncommon at the Strickland Quarry, but dendritic specimens are very rarely seen.

PYRRHOTITE has often been found in the quartz veins which traverse the mica schist at the Strickland Quarry. Small bronzy masses are intergrown with chalcopyrite. Diopside occasionally contains little bits of the mineral.

QUARTZ is an abundant mineral at Collins Hill, as might be expected. Magnificent clear and smoky crystals, up to at least a foot in length, and almost as broad were encountered while the Strickland Quarry was being worked for feldspar. Some cavities were large enough for a man to crawl into, according to various sources of information, and the crystals had plenty of room in which to develop. Citrine and rose quartz, of gem quality, was produced at one time.

RHODOCHROSITE is fairly common at the Strickland Quarry, where both cleavages and granular crystalline masses, the latter in specimens up to a couple of inches in diameter, have been collected by the author and others.

RHODONITE is a very unusual pegmatite mineral, but a cavity full of it was encountered at the Strickland Quarry, around 1920. Unfortunately, the operators mistook it for pink feldspar and threw away all but a few small pieces.

SALMONSITE, or a somewhat similar mineral, in partly fibrous tan and brown masses, appears to be the final alteration of lithiophilite at the Strickland Quarry. It has been seen many times, but the material is difficult to accurately identify.

SAMARSKITE is very rarely observed at the Strickland Quarry, but small crystals, and rounded masses up to an inch across, have been collected at the old Hale-Walker Quarry.

SCAPOLITE would not be out of place in the contact zone at the northern end of the hill, and the author has collected several specimens which exhibit columnar white crystallizations in a mixture of diopside, grossularite, and actinolite. They were gathered at the Schoonmaker dump.

SCHEELITE was discovered, by the author, as tiny specks in granular wollastonite, at the Strickland Quarry. The material came from "horses" of very tough quartz, in the schist which adjoined the pegmatite.

SCORODITE has been noted at the Strickland Quarry, by the author. A small piece of badly weathered arsenopyrite had a bright green coating of the mineral, and pale green ones are associated with the previously mentioned arsenolite.

SERPENTINE is evidently present at the Strickland Quarry, as an alteration product of diopside. The author has several specimens which show the light green material. It is somewhat greasy, in appearance, and can easily be scratched, though not with a fingernail.

SIDERITE is rarely found at the Strickland Quarry, as granular crystalline masses. It is usually altered to limonite. Siderite grades into rhodochrosite, which is much commoner at the locality, but the author is certain that both minerals occur. Tiny yellow crystals of what may be siderite have recently been noted on equally small crystals of pyrite, from a piece of vein quartz, there.

SILLIMANITE has been discovered, by the author, as very little radiated fibrous masses in schist and gneiss, at the kyanite

locality above the old building-stone quarry.

SPESSARTITE is present, at least as a molecule, and perhaps in fairly pure form, at the Strickland Quarry. Garnet from that locality is often incrusted with manganese dioxide. The massive garnet which is intergrown with manganapatite ought to be spessartite, or a mixture of spessartite and almandite, but no analyses are available to the author.

SPHALERITE crystals used to be found in cavities at the Strickland Quarry. It is much more usual to see small cleavages of the mineral. Most of the sphalerite is black, but brown and yellow varieties also occur . . . the latter two in close association with galena and lithium minerals.

SPHENE is seldom seen at Collins Hill, but the author has a couple of specimens. Pale yellow crystals accompany diopside and quartz at the waterfall locality, and little bright yellow ones, with thin plates of ilmenite, were collected from an exposure of calcite-bearing schist in the same area.

SPODUMENE is very common at the Strickland Quarry, and many tons are still in place. Large crystal sections are buried in some of the old dumps, and an occasional specimen of what might by loosely referred to as kunzite or hiddenite, though lacking the requisite transparency of those gem varieties, may be found. Several interesting alteration products, ambiguously classified as "pinite", were abundant when the locality was active. A few pieces of spodumene are slightly fluorescent and strongly phosphorescent, under short-wave ultra-violet light.

STAUROLITE crystals, of a cinnamon-colored type, are sometimes seen at the kyanite locality. They are untwinned and of poor quality.

SULPHUR is not generally known from Collins Hill. However, the author has a bottled specimen from the Strickland Quarry. It consists of a small mass of pyrite-bearing feldspar which is thoroughly incrusted with microcrystallized sulphur.

TORBERNITE is said to have been available in good specimens at the Strickland Quarry, many years ago. Only one small section of the pegmatite seems to have contained the uranium minerals.

TOURMALINE, in nearly every conceivable variety, has come out of the Strickland Quarry. Excellent gem quality crystals, ranging from colorless to green, blue, and pink, used to be obtained from cavities, which were carefully opened. "Watermelon" tourmaline, and several other types of zoned material, were occasionally common. Capillary crystals, so thin as to be actually flexible, were abundant in large masses of vug-riddled albite, together with the rare asbestiform kind . . . a material like "mountain leather", having the texture and appearance of coarse paper. Much of this remains in one part of the quarry. Distinct cross-sections of black crystals, about a foot in diameter, were removed from the lowest level of the excavation during the summer of 1953. Good black crystals in schist have been found, and radiating masses of brownish tourmaline exist near the kyanite locality.

TRIPLITE has never been seen at the Strickland Quarry by the author, but the Seventh Edition of "Dana's System of Mineralogy" accredits it to the locality.

URANINITE crystals, of excellent form, ranging up to a quarter of an inch in diameter, were obtained from near the surface of Collins Hill, during the early years of the Strickland Quarry. Wesleyan University, in neighboring Middletown, has many fine specimens. The crystals are octahedral, with cubic modifications.

URANOPHANE was associated with autunite and uraninite, when those minerals were found at the Strickland Quarry. The author managed to secure a couple of specimens, when the locality was being worked for mica in the spring of 1954. They show bright yellow coatings on manganapatite, with autunite and crytolite.

VIVIANITE has been observed at the Strickland Quarry, by the author. The mineral is very rare, comprising thin blue films on weathered lithiophilite.

WOLLASTONITE, or what gives every evidence of being that contact mineral, was found at the Strickland Quarry, by the author, in 1953 and 1954. It is pure white in color, and granular massive in form. Fairly large pieces were obtained from the cores of lenticular quartz- actinolite-grossularite-diopside "horses" in biotite schist, from near the pegmatite. The mineral in photosensitive, turning brown and ugly if exposed to sunlight for very long. It is faintly fluorescent, in a pale orange tint, and strongly phosphorescent, in a brighter shade of the same color, under short-wave ultra-violet radiations.

XENOTIME crystals, up to an inch across were occasionally found at the Strickland Quarry, especially on the Schoonmaker dump, at one time. They were both tabular and prismatic, had a chocolate-brown color, and were associated with tiny columbite crystals in a matrix of discolored cleavelandite. The author has no doubt that they could still be dug out of the big pile.

ZIRCON, of the radioactive variety cyrtolite, is common at the Strickland Quarry, but the crystals are of small size. Parallel groups are often found in cleavelandite and smoky quartz, and other matrices include manganapatite, microcline, lithiophilite, and various mixtures. The crystals have such short prisms that they resemble distorted dodecahedrons, probably being mistaken for opaque garnets by some collectors. The color is brown or black. Ordinary reddish-brown zircon is rarely encountered. It has a slight amount of fluorescence.

ZOISITE is probably the light brown cleavable mineral which the author has collected from among the diopside blocks of the Schoonmaker dump, at the Strickland Quarry. The specimens are glassy and good quality. . . . . .

A few of these things are not thoroughly identified, but they have been included because they obviously do not duplicate other minerals in the list. If they are not what the author calls them, they are something else which would make the tabulation just as impressive. In addition, there are a number of materials on which not even a guess would be hazarded. It is certainly safe to say that a minimum of ninety different species occur at Collins Hill, although the present article describes a slightly larger number, and it is reasonable to assume that the total will reach a hundred within the next few years.

The author wants to make it clear that, as with any old locality which has been visited by thousands of collectors, it is necessary to do a considerable amount of digging and pounding in order to spot the rarer ones. At this time, in the autumn of 1954, the pit, itself, is still accessible, and a vein of lithium minerals is furnishing excellent specimens of amblygonite and colored tourmaline. However, there is no immediate prospect of renewed activity.

If other people have information about Collins Hill minerals, data which is not included in the present compilation, the author would be glad to obtain it. He wishes to acknowledge his indebtedness to the following individuals: Mr. Gunnar Bjareby, Mr. Wilbur J. Elwell, Mr. Homer Hise, Mr. Ronald E. Januzzi, Dr. Joe Webb Peoples, Mr. David M. Seaman, Mr. John Tweedy, Mr. William Wilkes, and the authors who have been previously mentioned.

R&M shows good results!

Editor: R&M

I wish to say that through the help of the ROCKS AND MINERALS magazine my little "after dinner" mineral business has shown continued progress at a rate greater than expected.

Anthony Thurston
Morningdale, (Boylston)
Massachusetts

June 23, 1955

Still Tops!

Editor R&M:

You still have the top magazine of them all —keep up the good work!

Charles H. Innis
166 Pearl St.
Jackson, Ohio

May 2, 1955

University of South Carolina Owns Colburn Collection

A mining engineer and banker who assembled an unrivalled collection of minerals from the Southern Appalachian region, now owned by the University of South Carolina, was one of a group of mineralogists who visited the University Geology Museum recently.

Burnham S. Colburn of Biltmore, N.C., and members of the Southern Appalachian Mineral Society, spent a day examining the priceless specimens at the University.

Mr. Colburn's personal collection was purchased for the University ten years ago by friends of the geology department. Containing more than 200,000 specimens from all over the world, many of them rarities, it forms part of the geology department holdings which date back to Thomas Cooper, president of the University from 1821 to 1834 and one of the pioneer geology teachers in America.

The Colburn collection includes a large number of precious and semi-precious stones, many of them beautifully cut, and a host of less spectacular but equally valuable minerals of all types. It is especially rich in minerals of the Southern Appalachian region. In addition, it includes a systematic set of representative specimens of all of the principal mineral species.

Historically, the University mineral collection was begun by Thomas Cooper, second president of the South Carolina College. He brought with him many examples of English minerals from well

Examining mineral specimens in the University of South Carolina Geology Museum in Columbia, S. C., are, left to right, Col. Orville M. Hewitt of Biltmore, N. C., Dr. L. L. Smith, head of the University of South Carolina geology department and South Carolina state geologist, Burnham S Colburn of Biltmore, N. C., who assembled the Coluburn mineral collection now in the University of South Carolina Geology Museum, and Dr. Stephen Taber, University of South Carolina emeritus professor geology. (USC photo by Kern Powell)

known localities, as well as others collected in America.

The University collection was augmented by Prof. Lardner Vanuxem who taught geology and mineralogy from 1821 to 1827. Prof. Richard T. Brumby, who came to the college in 1848, personally collected minerals in his travels through the Southern Appalachians and obtained funds for purchases in Europe.

Perhaps the most valuable material in the Colburn collection is a group of specimens of hiddenite, a beautiful green spodumene closely resembling emerald in appearance. It has been found only in a mine at Hiddenite, N.C. Several gems have been cut from hiddenite crystals and an attempt made to mine the mineral commercially, but it is too scarce.

Other examples of semi-precious and precious stones in the Colburn collection are kunzite, sapphire, beryl, aquamarine, emeralds, garnet, opals, amethyst, clear quartz, smoky quartz, turquoise, and lapis lazuli, both cut and uncut.

The Colburn collection contains the largest crystals of monazite that has ever been found. This mineral, mined commercially in South Carolina, was once used to make mantles for gas lamps. Closely related to thorium, it now is used for atomic research.

A NEW METHOD FOR DETECTING THE POSSIBLE PRESENCE OF SCHEELITE OR POWELLITE

Scheelite is hard to distinguish from such associated minerals as quartz, light colored silicates, and carbonates. Short wave ultra-violet light causes scheelite to fluoresce a light blue to yellow, and causes powellite to fluoresce yellow. It has to be used in the dark, or in a special dark box. The following method was evolved after noticing that scheelite grains were very noticeable on specimens just scrubbed with water. The scheelite grains were a very noticeable white color that stood out from the dark translucent appearance of the other minerals.

Examination of the optical properties of scheelite and powellite explained the results. The following data are the refractive indices of scheelite, powellite, and common associates that they are likely to by confused with.

	In Limestone	In Veins
Scheelite	Calcite	Quartz
1.92-1.93	1.49-1.66	1.54-1.55
Powellite	Dolomite	Apatite
1.97-1.98	1.50-1.68	1.64-1.65
	Diopside	Topaz
	1.66-1.69	1.62-1.63
	Tremolite	Fluorite
	1.60-1.63	1.43
	Epidote	Albite
	1.71-1.72	1.53-1.54
	Wollastonite	
	1.62-1.63	
	Fluorite	
	1.43	

Only spinel 1.75, and corundum 1.76-1.77 have a high enough refractive index to be confused with scheelite or powellite when wet, but are found only in limestones. Water has a refractive index of 1.33 which is close enough to the indices of most of the gangue minerals to give them considerable transparency. Theoretical considerations indicate that kerosene with a refractive index of 1.45 would be even more suitable than water. A little practice with a known specimen of scheelite will enable anyone to pick out specimens that probably contain scheelite in full daylight. It should also be an aid to the prospector in handling material such as the non-fluorescent scheelite reported from Idaho recently.

Otto G. Bartels
376 Amostown Road
West Springfield, Mass.

PEGMATITE MINERALS OF THE UNITED STATES

David M. Seaman
American Museum of Natural History, New York City

Article 5, Phospates (concluded)

LAZULITE, a basic aluminum, iron, and manganese phosphate with manganese in greater percentage than iron, forms a series with *SCORZALITE* where iron is the prevalent metal over manganese.

Lazulite is a rather rare mineral in pegmatites but it has been found at a number of localities. Masses to four inches in diameter occur in the Palermo quarry, North Groton, New Hampshire and to an inch in diameter at the Smith Mine, Newport, New Hampshire. It also has been found in a small pegmatite in mica schist at Stoddard in the same state.

Scorzalite occurs at the Victory mine near Custer, South Dakota with quartz, albite, muscovite, black tourmaline and triphylite.

DICKINSONITE, a complex hydrous manganese, iron, sodium, calcium, potassium, and lithium phosphate has been found at Branchville and Portland, Connecticut; and at Poland, Maine in lithium pegmatite.

FILLOWITE, with the same composition as dickinsonite occurs sparingly at Branchville, Fairfield county, Connecticut.

FAIRFIELDITE, a hydrous phosphate of calcium and manganese has been noted as a rare mineral at Branchville, Fairfield county, Connecticut from which it was named; and also from Poland and Buckfield, Maine; and from Center Strafford, New Hampshire.

REDDINGITE, a hydrous manganese phosphate occurred at Branchville, Connecticut. It has also been recorded from Buckfield and Poland, Maine.

PALAITE, another hydrous manganese phosphate was found as an alteration product of lithiophilite at the Stewart mine, Pala, San Diego county, California.

STEWARTITE, another hydrous manganese phosphate was found abundantly as an alteration of lithiophilite at the Stewart mine, Pala, California. It has also been reported from Newry, Maine and from the Palermo and Fletcher mines at North Groton, New Hampshire.

VIVIANITE, hydrous ferrous phosphate occurs in pegmatites as an alteration of triphylite, lithiophilite and other phosphates. It has been noted as a coating on other pegmatite minerals at Rumford, Maine and at North Groton and Center Strafford, New Hampshire; mostly upon triphylite.

STRENGITE, hydrous ferric phosphate occurred with salmonsite at the Stewart mine, Pala, California.

METASTRENGITE, a hydrous ferric phosphate with some aluminum substituting for iron has been found at the Palermo and Fletcher quarries near North Groton, New Hampshire; and at Pala, California.

PURPURITE, essentially an iron-manganese, hydrous phosphate with manganese predominating forms a series with *HETEROSITE,* where iron is the predominating metal present. Both minerals occur as an alteration of triphylite and have been found chiefly in lithium pegmatites with other lithium minerals.

Purpurite was first found in 1905 at the Faires Tin mine near Kings Mountain, North Carolina. Purpurite or heterosite have been found in large amounts at Newry, Auburn, and Rumford, Maine; also at North Groton, Grafton, and Center Strafford, New Hampshire. Noted elsewhere at the Andrews quarry, Portland, Connecticut and at Branchville, Connecticut; from the Etta mine near Keystone and from Hill City, South Dakota; at Pala and Rincon, California. A heterosite pseudomorph after a triphylite crystal was found at the Valencia mine, North Groton, New Hampshire.

Many of these occurrences were found long ago and without modern analyses, it is impossible to distinguish between these two minerals. Most material in recent years has been commonly called heterosite, especially from Maine and New Hampshire.

SICKLERITE and *FERRISICKLERITE* form a series with manganese being prevalent in the former and iron in the latter mineral. Both are lithium, iron, and manganese phosphates. They occur as secondary minerals formed by the alteration of triphylite and lithiophilite in pegmatites in the zone of weathering.

Sicklerite occurred at Pala, California as an alteration product of lithiophilite together with hureaulite, salmonsite, and metastrengite. Ferrisicklerite occurs in the pegmatites at Center Strafford, Rochester, and North Groton, New Hampshire; and at Peru and Stoneham in Maine.

SALMONSITE, a hydrous iron and manganese phosphate was found as an alteration of hureaulite at the Stewart mine at Pala, California.

LANDESITE, a complex hydrous iron and manganese phosphate occurred in rough octahedral-like crystals at the Berry quarry, Poland, Androscoggin county, Maine as an alteration of reddingite.

HUREAULITE, a hydrous manganese phosphate has been found at Branchville and has been reported from Portland, Connecticut. It has also been found at the Stewart mine, Pala, California and with strengite, metastrengite, and heterosite in weathered triphylite at the Palermo mine, North Groton, Grafton county, New Hampshire.

LUDLAMITE, a hydrous iron phosphate occurs in small tabular crystals and cleavages with triphylite at the Palermo mine near North Groton, New Hampshire.

BERMANITE, a basic hydrous phosphate chiefly of manganese, iron, and magnesium occurs as minute tabular crystals in a pegmatite near Hillside, Arizona at the 7 U 7 Ranch in narrow veinlets and in drusy cavities in triplite.

CHILDRENITE and *EOSPHORITE* are a series with iron being dominant in the first and manganese in the latter mineral. They are hydrous, iron, manganese, and aluminum phosphates.

Childrenite has been found in lithium pegmatite at Hebron and Newry, Maine.

Eosphorite has been found in crystals to two inches in length at Branchville, Connecticut. In Maine eosphorite occurs at Paris, Poland, Buckfield, Newry, and Rumford. Crystals from Rumford to an inch in length have been found. It also is known from Keystone, South Dakota and from Red Hill North Groton, New Hampshire. The occurrences are chiefly in lithium pegmatites.

TORBERNITE, a hydrous phosphate of uranium and copper occurs as a secondary mineral in pegmatite altering from uraninite and copper minerals. It is rather rare but is usually associated with autunite, frequently in parallel growth with it, and is much rarer than autunite.

Torbernite has been noted at the Fisher quarry, Topsham, Maine; Haddam Neck, Portland, and Glastonbury, Connecticut; from Grafton, New Hampshire; Little Switzerland and Penland, North Carolina; from Bedford, New York; from southeasten Pennsylvania; and elsewhere.

METATORBERNITE, another hydrated phosphate of copper and uranium has been found very rarely in the pegmatites at Spruce Pine, North Carolina.

AUTUNITE, hydrous phosphate of uranium and calcium occurs as a secondary mineral usually associated with uraninite and other uranium minerals. It usually fluoresces a distinct yellow-green under ultra violet light. Large amounts of autunite have been found at the Ruggles quarry at Grafton, New Hampshire with uraninite, gummite, clarkeite, etc. It is rather common in small amounts in the Spruce Pine district of North Carolina. It has been noted in many pegmatites of Maine, New York, New Mexico, etc.

URANOCIRCITE, a hydrous, barium, and uranium phosphate is very rare but has been reported from Grafton, New Hampshire.

PHOSPHURANYLITE, a hydrated phosphate of calcium and uranium occurs as a secondary mineral in pegmatites with autunite and less commonly uranotile. Localities where it has been found are at the Flat Rock and Buchanon pegmatites Mitchell county, North Carolina; at the Ruggles mine near Grafton and the Pa-

lermo mine near North Groton, New Hampshire; at Newry, Maine; Bedford, New York, and at Branchville, Connecticut.

ROSCHERITE, a hydrous phosphate of manganese, iron, and calcium has been noted in lithium pegmatite at Newry and at Black Mountain, Rumford, Maine.

BASTINITE, a phosphate of lithium with iron and manganese, occurs along fractured surfaces of lithiophilite at the Custer Mountain Lode, ten miles east of Custer, South Dakota.

XANTHOXENITE, a hydrous calcium and iron phosphate occurs as one of the last formed of the hydrothermal reworked products of triphylite at the Palermo mine near North Groton, New Hampshire. It is usually found with other minerals formed in open cavities in triphylite as upon quartz crystals, siderite, apatite, whitlockite, childrenite-eosphorite, amblygonite, and other phosphates.

ARROJADITE, a sodium, iron, manganese phosphate occurs associated with beryl, spodumene, mica, cassiterite, and graftonite at the Nickel Plate mine in the Keystone district, Pennington county, South Dakota and also the Etta mine in the same region.

BERAUNITE, a hydrated, basic phosphate of both ferrous and ferric iron has been found in altered triphylite at the Palermo mine, North Groton, New Hampshire.

PARSONSITE, a rare, hydrous lead and uranium phosphate occurs in fracture surfaces in massive feldspar and quartz associated with autunite and phosphuranylite in the near vicinity of uraninite and gummite masses, at the Ruggles pegmatite near Grafton, New Hampshire.

CRANDALLITE, a hydrous calcium and aluminum phosphate has been found as an alteration product in pegmatite near Harney City, South Dakota.

WARDITE, a hydrous sodium, calcium, and aluminum phosphate was found as a single specimen with small crystals coating a pegmatite surface at Beryl Mountain, near West Andover, New Hampshire.

HURLBUTITE, a new calcium and beryllium phosphate occurs in a complex pegmatite with lithium, beryllium, and phosphate phases at the Smith Mine near Chandlers Mill, Newport, New Hampshire. Perfect crystals to an inch in diameter have been found embedded in smoky quartz in close association with triphylite crystals, muscovite, and quartz. Secondary minerals include, brazilianite, beryllonite, albite, small twinned amblygonite crystals, colorless and purple apatite crystals, childrenite, siderite, and siderite pseudomorphs after hurlbutite crystals.

AUGELITE, a hydrous aluminum phosphate was found recently by the writer at the Smith mine near Newport, New Hampshire. It has also been identified at the Palermo mine near North Groton, also in New Hampshire. Augelite was found in 1952 at the Etta mine near Keystone, South Dakota. The Smith mine augelite consists of small blue crystals associated with lazulite, albite, and quartz. Small colorless crystals from the Palermo mine are associated with whitlockite, brazilianite, goyazite, quartz, siderite, and apatite in drusy cavities and as colorless masses in a granular matrix of quartz, siderite, and feldspar. Occasional grains of dark lazulite are also present in the granular matrix from the Palermo mine. It is interesting that all these finds of augelite in pegmatite have been made in the last two years.

PALERMOITE, a new hydrous lithium, sodium, strontium, and aluminum phosphate occurs in small crystals as a late hydrothermal product in open cavities at the Palermo mine, North Groton, New Hampshire. Associated minerals are goyazite, siderite, childrenite-eosphorite, green fibrous beraunite, crandallite-deltaite (?), whitlockite, brazilianite, tiny apatite crystals and small quartz crystals.

Summary of Phosphates

The number of phosphate minerals identified from the pegmatites of the United States is very large being second only to the silica and silicate group. Phosphorus

is a relatively abundant element in small amounts in pegmatites but the phosphate group of minerals as a whole rarely accounts for as much as one percent of the bulk of pegmatite material. Apatite, the chief phosphate mineral occurring in pegmatite is nearly always present in one or more of its varieties even if in only a fraction of a percent.

A number of phosphates are particularly characteristic of the lithium type of pegmatite with lepidolite spodumene, albite, quartz, and lithium tourmalines. These are triphylite, lithiophilite, and amblygonite, Amblygonite occasionally makes up several percent of the bulk of this type of pegmatite. Rough crystals occasionally are found more than a foot in length as at the Ingersoll mine near Keystone, South Dakota. Amblygonite has been mined for its lithium content at several pegmatites near Keystone in the Black Hills of South Dakota. However none of the phosphate minerals have been mined for their phosphorus content nor has apatite been recovered in sufficient quantity for fertilizer from the pegmatites of the United States.

One ad swamps advertiser!

Editor R & M:

. Received the notice relative to my swap ad to be repeated in May-June issue of R & M. Gosh the response is so great from the one insertion, (March-April) I'll be the next 2 months writing, wrapping & mailing to the rockhounds that have already written to me. Please let the Readers of R & M know I'm grateful for their response to my ad, and to be patient with me until I fulfill all the request and trade deals I and they have made. I have enough spec. Hematite to fulfill all my obligations.

Bob Schenk
R. 1.
Republic, Mich.

May 16, 1955

Never too old to collect Minerals!

Editor R & M:

I retired (age 65) two years ago and have since done some collecting in New Mexico, Tennessee, Virginia, New Jersey, Maine and Canada. I have had some very valuable assistance from three enthusiastic collectors and contributors to your magazine, namely,—Howard V. Hamilton John W. Edwards and Paul Popovich. I have corresponded with them and met them in their homes.

I expect to go to New Mexico from Canada by a Northern Route and expect to meet some of the other fine people who contribute to ROCKS AND MINERALS. Had I subscribed to your magazine at least a year before I retired and started to travel my collecting to date would have been many times more satisfactory and successful.

Max C. Linn
Brightwood Trail
Pittsburgh 37, Pa.

July 5, 1955

A Big Value for the money!

Editor R & M:

I don't know where there is a bigger value for the money than R & M. Since subscribing last year, I have become interested in a cut gem collection and I now have the start toward a fine complete collection. Both Meier and Romanella, two of your advertisers, have supplied considerable material. They are very fine men and reliable."

M. L. Bailey
P.O. Box 2426
Winston-Salem, N.C.

May 4, 1955

As to the Colors of Obsidian

Editor of R. & M.

The writer can remember when, owing to the abundance of black obsidian, he thought there was no other color of that volcanic glass. Maybe some rock hounds are also still of that impression. On page 164, of March-April R. & M., Mr. Hollis J. Gordon, of Independence, Mo., tells in a letter that red glass slag is being offered by some people as "red" obsidian. He writes, "I don't say there isn't red obsidian, but as yet I haven't seen any."

To the best of my recollection some of the mineral manuals list a number of colors for obsidian from various mineral localities, naming red as one of the colors.

Having seen the letter by Mr. Gordon, the writer reached out to the nearest reference work at hand, the complete Nelson's "Encyclopedia," and this is what in part is printed there.

"Obsidian—it is often black, or very dark gray, sometimes green, RED, brown, striped, or spotted."

H. E. Miller
P.O. Box 12,
Plunkett Ave.
Hinsdale, Mass.

May 10, 1955

THE UNION LIMESTONE QUARRY, UNION, MAINE

Daniel S. Barker
496 Yale Station, New Haven, Conn.

FOREWORD

The Union limestone quarry is probably a quite typical occurrence of average interest to the collector. This article is written to bring the locality to the attention of ROCKS AND MINERALS readers; it should certainly be visited by passing and nearby collectors, although it is doubtful that a special trip of fifty miles or so out of one's way would be justified.

The pit is owned and operated by the Knox Lime Company, and has been worked, at least intermittently, since 1905. Permission to collect on the dumps must be secured at the office, a small building beside the winch, on the west brim of the pit. A friendly welcome was extended to the writer on both of his visits in 1946 and 1954. The quarry hands said that only a few collectors visit, but these give the dumps a thorough going-over. In the spring of 1954 someone covered the area with a Geiger counter. Results were unspecified and presumably uninteresting.

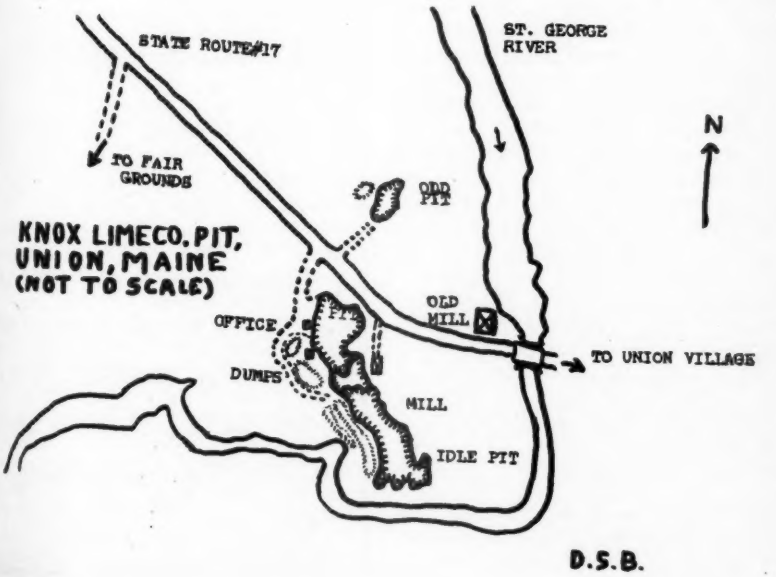
Collecting will be confined to the several dumps, since the pits are deep, sheer-sided, and cleanly worked. The pit nearest the road, the one presently worked, is 165 feet deep and enterable only by hoist.

LOCATION

The quarry is in plain sight fifty yards off on the south side of state route 17, about ½ mile west of Union village, Knox County, above the center of the State's coastline. Union is about 10 miles NW of Rockland and Camden. It is, judging from this native's past experience, undoubtedly the only easy-to-find locality in the State.

GEOLOGY

The opening is in a coarse crystalline metamorphosed limestone, actually a marble. The outcrop belt trends NNE, and appears to represent a doubly plunging anticline. The rock is high in calcium content, light bluish-gray in color, with thin darker seams paralleling the bedding. The limestone, being of superior quality for



chemical purposes, finds a ready market in the manufacture of wood pulp and paper.

At least one dolerite dike cuts the limestone. The minerals of specimen quality occur at igneous contacts and in fractures along the bedding plane. Bastin tentatively assigned a Cambro-Ordovician age to the limestone, which is unfossiliferous.

MINERALOGY

Minerals identifiable in specimens found by the writer are the following;

Amphibole, var. tremolite - gray columnar masses and radiating crystal groups up to two inches, on limestone.

Amphibole, var, hornblende - dark, massive and bladed.

Calcite - massive (major constituent of limestone) and as good, highly modified rhombohedral crystals, up to 15 mm. Also good cleavages, opaque, pearly white to gray. Some is fluorescent red under short wave ultraviolet. The miners say that good stalactites have been found in the past in solution cavities, probably along bedding fractures.

Chalcocite - black sectile masses up to six inches.

Chalcopyrite - Masses, disseminated grains, and veinlets in limestone.

Kaolinite (tentative identification) - tan "papery" matted crust on limestone, tentatively identified from a poor sample by Professor H. Winchell of Yale as a clay mineral, probably close to kaolinite. Only three specimens found.

Limonite - alteration stain and massive. Nearly all pyrite has been altered to limonite, leaving hollow crystal casts in limestone.

Malachite - alteration product of chalcocite, as green stains and crusts. Poor specimens.

Pyrite - fresh unaltered cubes up to two inches on an edge have been found by cracking open large blocks of freshly-quarried limestone.

Quartz - rare masses and thin druses.

In addition to these, Burr lists andalusite, "cobalt ore" (linnaeite), galena, kerolite, magnetite, and "nickel ore".

With good luck and plenty of time a collector can find good specimens of some of the above, to break the monotony of collecting from the bewilderingly rich pegmatites of the western part of Maine.

REFERENCES

1. Allen, H. W., "Progress report of Limestone Resource Survey of a portion of Knox County, Maine": Report of the State Geologist 1951-1952, Maine Geological Survey, pp. 11-29.

2. Bastin, E. S., "Description of the Rockland Quadrangle", U. S. Geological Survey Folio #158 (1908).

3. Burr, F. F., "Index of Minerals by towns": First Annual Report of the State Geologist, 1930, P. 46.

We can depend on him?

Editor R & M:

As long as I have money, you can depend on me as being a regular subscriber for R & M.

A. E. Anderson
2110 S. 14th St.
Springfield, Ill.

May 16, 1955

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—crystalline fl—fluoresces ph—phosphoresces

ALABAMA—The following note was sent in by William M. Johnson, RFD 6, Knoxville, Tenn.

"Fuller's earth, a clay composed of hydrous silicates of aluminum and much used in industry, is found in De Kalb County, 4 miles northwest of Fort Payne, Ala. There a deposit in Wills Valley has been mined since 1918. Another deposit is reported as being in Clarke County."

ARIZONA—Earl Mayer, 1753 "I" St., Yuma, Ariz., sent us an interesting specimen some month ago. The specimen came from Crystal Hill, Plumose Co., Ariz., and consisted of a dark brown cube of limonite (pseudo pyrite) embedded in milky quartz.

ARKANSAS—Byron C. Marshall, 204 Central Ave., Hot Springs National Park Ark., sent in the following item:

"Natural phenomena that is the least bit out of the ordinary, has always interested me greatly, as it does most people for that matter. These things especially nearly overwhelm one, when he happens on them rather suddenly, and not having had knowledge of them previously. Such an occurrence took place November 7th, 1936. I was on one of my many trips, doing cave exploration, in north-western Arkansas. I had stopped at Clinton, to inquire as was my custom. Some one finally told me of a natural rock bridge somewhere near Clinton. Yes, inquiry brought forth information about several caves thereabout. But not one seemed to know just where that natural bridge was. Most had not even heard of it. Others had heard it seemed, some mention of it at some time, some where, but it was to them like some dream, - evasive. After much effort, some poor soul had a more vivid recollection. After so much failure, it nearly startled me. Yep, a Troy Beavers, who lived about six miles north of Clinton, had one time mentioned this bridge. As no one else seemed to know any thing more concrete, it seemed the most sensible thing for me to drive out and see Mr. Beavers, the miracle man. The only man who seemed to know any thing.

"Fortunately, I contacted Mr. Beavers, and Mr. Beavers took me to see one of Arkansas' greatest wonders. Such a wonder, that I still wonder why no one knows anything about it. Strange as it may seem, I don't think I have ever heard anyone say anything about this, nor do I remember of ever having read anything about it. Well, any way ,when my guide took me to this wonder, part of the mystery of its vagueness was thus solved. This interesting bridge was located about three-fourths of a mile east, of highway number 65, five miles north of Clinton. From the highway, one had to walk the three-fourths mile, through rough terrain. One who did not know exactly where it was would never have found it. No roads, no paths, and almost impossible to give any one directions.

"This was about twenty years ago. Have never been back. Today, there may be markers, - but I doubt it. I might now add, that Clinton is the county seat of Van Buren county. As stated, this bridge is in the wilds. It is on a rough slope. It is a ridge or back-bone of sandstone that crosses this slope. In the past a drainage valley formed, which ran into it at about its center. In time, the action of this stream ground its way through, and gradually deeper and deeper, till now there is an arch about thirty feet high, and about sixty feet wide. On top this bridge, it is so flat that a wagon or car could go across it. This flat top is eighteen feet wide at widest point. It was still the dry season,

and this stream which would flow under and of course through, was dry. I was sorry that it was not more available to the public. With the big road machinery they have today, a good road could be built in to it, but I doubt that this has been done.

"Several times in my past, I have had great difficulty finding the location of points of considerable interest, from people who lived within a very few miles of same. It condenses down to the same o'd story, - local things seem never worth the effort to go see.

"There is another natural bridge, about two miles north-west of Eureka Springs, Carroll Co., Arkansas. It is very similar to the above, but is in solid chert formation, and a stream has eaten through. This bri lge is not half the size of the one near Clinton. There is also a pivot rock here, probably ten or twelve feet high. These are the only two natural bridges I know of in the state. Also know of two pivot rocks near Shirley, Van Buren county, and one about three-fourths mile from edge of Hot Springs National Park, Garland county, on one point of Sugar Loaf Mt., near the top crest."

CALIFORNIA—The following letter, dated June 14, 1955, comes from Gordon Vi Gario, 2231 Pine St., Bakersfield, Calif.

"Please find enclosed a thumbnail size specimen of aragonite from a road cut (US 466), 69 miles from Morro Bay, Calif.

"I collected it together with many others while I was returning home from a trip to San Francisco.

"This specimen, as well as others, shows signs of at least two xlizing solution present in the mother rock. The larger spear point xls could have possibly formed first, and the tiny prismatic xls could have been deposited from a secondary solution.

"The loose bedrock was well permeated with seams of aragonite xls. If one wishes to recover the xls in good condition, it is best to use a screwdriver to pry them out. The convential rockhound pick is useful only for breaking the bedrock.

"From a nearby cut, I found several large specimens of globular aragonite. These specimens show signs of a constant drip of mother liquor, rather than the possibly permanent solution that produced the xled forms. However I'm just guessing—this may not be the case at all.

"I have a number of smaller thumbnail sizes that ought to make very beautiful micromounts. If any readers are interested in m/m specimens, they are most welcome to contact me."

The small specimen received consisted of tiny, colorless bristling needles. Though tiny, they are very, very nice.

COLORADO—The Colorado State Museum, immediately south of the State Capitol in Denver, Colo., houses a very fine display of Colorado minerals that is worth traveling miles to see. Recently the Museum has published for free distribution a one page announcement titled —"Colorado Gem Stones" (with localities).

CONNECTICUT—A few months ago we received the following item from Richard Schooner, P.O. Box 215, East Hampton, Conn.

"Here is another note, if I have not already furnished the information:

"I have found striated crystals and columnar aggregates of a light brown idocrase at the Gillette feldspar quarry, in Haddam Neck, (Middlesex Co, Conn.). These crystals, previously regarded as tourmaline, occur in a mixture of light green diopside, quartz, colorless fluorite, and plagioclase feldspar, associated with actinolite and schist, in a few masses of contact metamorphic rock on the dumps. Some negligible cleavages of scheelite, as well as tiny crystals of yellow sphene, are likewise present in several specimens. There is also a possibility of wollastonite.

"The idocrase crystals are prismatic, and they range up to a couple of inches in diameter and perhaps four or five inches in length. I noticed a slight cleavage on the broken crystals, about four years ago, and, on an outing in April of 1954, I was able to find a dozen or more masses of the tough contact rock which showed distinctly square cross-sections. Idocrase was reported from the White Rocks area, in Middletown, a few miles up the Con-

necticut river, but I am not sure if it occurred under the same circumstances."

DELAWARE—We have seen some brownish jasper pebbles that had been picked up on Bethany Beach in Sussex Co., Del.

FLORIDA—Byron C. Marshall, 204 Central Ave., Hot Springs National Park, Ark., has sent in another item, this time on Florida, as follows:

"The latter part of October and the first part of November, 1954, my long time friend, Mr. V. C. Wright, of Piggott, Arkansas, and his wife were visiting here at Hot Springs, Arkansas, and Mr. Wright was telling me about some interesting things he had collected on one of his recent, of several trips to Florida. The information was so interesting to me, that I suggested that it should be reported as a permanent record, and Mr. Wright stated that he would be glad to send the specimens down for me to examine, after they return back to Piggott. I might state that Mr. Wright is an enthusiastic collector, and of course a member of our Rocks and Minerals Association. I am very happy to record the following.

Number 1, 4, and 5, (these are the numbers Mr. Wright gave these specimens for means of identification), are the mineral Calcite (calcium carbonate), the writer having tested these for their crystallography, hardness, and acid, etc. They are translucent, and of a bright and beautiful, light lemon yellow. They have crystallized as a quite simple type of doubly-terminated scalenohedral crystals They are peculiar in that they have smaller, side attached, flat scalenohedral crystals. On account of the compact grouping arrangement, the double termination does not show in many instances. In other words, on account of their compressed situation, the termination of only one end of the crystal can be seen in most cases. Largest crystals about ¾ inch length, by about ⅝ inch width. They are compressed slightly, so as to be about ½ inch thick. In these three specimens, the scalenohedron crystals are so thick and compressed, as to form a rosette.

"Nos. 1, and 5, are a replacement cast of some bivalve shell, probably a clam. One of these is about one inch and the other about two inches across. They represent quite vividly, the shape of the original shell. The original shell had dissolved completely, therefore leaving no trace".

Nos. 1, 4, and 5, have a nice pale blue fluorescence and hold the glow a few seconds as an after phosphorescence. Have only tried them under the (black bulb) Purple X light.

"Nos. 1, and 5, were picked up along a canal about one mile south-east of Ft. Lauderdale, Broward County, southern Florida. A canal 40 feet deep had been dug and the material strown over the swamp to make a fill. Here is where I found them. Whether they came from one foot or 40 feet below the surface we can never know.

"No. 4, sent me, is only a fragment of a larger piece. The piece I have is about 3 x 2 x 1½ inches, and has about 50 xls. Some (the crystals) are much larger than the one I sent you (sample 4), and some much smaller. My son-in-law says that when they struck this deposit (which was about 30 feet deep), they had to put on extra heavy punches to break through it. It was so much harder than the coquina rock in which it was imbedded. This deposit is located about 4 miles south-east of Miami, Dade County, southern Florida.'

"There was also collected by Mr. Wright, a quite porous coral that had minute crystals of quartz intermingled in the pores. This coral had grown around shells of about ¾ inch size. These shells had decayed and left an opening in which perfect quartz crystals had formed. One cavity is about ⅝ x 7/8 inch and contains nine clear quartz crystals in a rather fan-shaped group. This coral has a pale blue fluorescence, but not as good as that of Nos. 1, 4, and 5. No after glow. It is from the same locality and found under the same circumstances as Nos. 1, and 5."

GEORGIA—Some of the finest gem quality rose quartz that we have seen in years, was received some few weeks

ago from Gilbert W. Withers, prop. of Genuine Gems. P.O. Box 1531, Atlanta, Ga. In his letter, dated May 1, 1955, Mr. Withers writes:-

"I have forwarded you under separate cover an exact sample of the one pound package I offer in my ad copy.

"Material is from Troup County, Georgia, and fine beryl is also being recovered."

The rose quartz is in large pieces, of good rose color, and will cut asteriated stones.

IDAHO—In Custer County, Idaho, native silver has been found in twisted wire-like forms in cavities of ore in the Yankee Fork district.

ILLINOIS—The following item, dated March 26, 1955, comes from H.E. Chelf, 219 Hendryx Lane, Peoria, Ill.

"Last Sunday we visited the Irons gravel pit at Chillicothe (Peoria Co.), Ill., where the wife picked up three nice sizeable Lake Superior agates and I found two native copper leaf-shaped specimens of 3½ and 6 lbs. respectively.

INDIANA—Walter Reeves, R3; Greencastle (Putnam Co.), Ind., has sent in a large and attractive specimen consisting of bluish-gray chalcedony banded with chocolate-brown chert.

"Found in field near my home"—on label.

IOWA—Amel Priest, Peru, Iowa, in his letter dated June 7, 1955 sends in the following:-

"Just a note for W. N. on M. O. Last week I made a trip to a rock quarry north of Osceola (Clarke Co.) Iowa. This is a good place to hunt fossils and I find many nice Pennsylvania age Brachiopods here. While walking across a place where the overburden had been removed for some time I happened to notice some large cracks in the limestone. Being curious I began to examine the largest crack and the sides were coated with a material that looked like ice. Up a little way the crevice was coated over with a yellowish shaly limestone a different color than the white of the surrounding lime rock. Further examination revealed the crevice continued under the yellowish limestone which was just a shell, and peering underneath I was amazed to behold an Icicle hanging - Stalactites in the Corn State ??? Careful tapping with trusty ole rock hammer soon loosened a piece and sure enough an icicle in stone about five inches in length. Further search brought others to view so it was a thrill to quarry these stone icicles and I returned home as elated as if I had found a gold mine."

KANSAS—The following item dated June 16, 1955, comes from Marie Kennedy.

"Have you ever heard of selenite sunflowers? I picked a handful of those while we were on vacation this year. We used to live at Hoisington, Kans., about 10 or 15 years ago. It was while there, that we discovered this place along the Smoky Hill River in Russell Co., where the selenite formed like flowers. I named them Sunflowers because it is the State flower of Kansas and they look just like that. The petals take the usual diamond shape and they form in a circle around a spot in the center, that looks for all the world like the seeds. Maybe you think I'm drawing on my imagination so I'm sending some samples for your approval. I hope you will find them as interesting as I do."

Small, clear to smoky gray groups of selenite xls have been received. They do resemble the sunflower in appearance, except for color.

KENTUCKY—Charles Johnson, 307 W. 4th St., Frankfort, Ky., has sent in a 4" ball of gray marl (a calcareous clay). The marl comes from Balls Branch (near Monterey) in Owen County, Ky.

"The marl is washed down Balls Branch, and rolled in round balls."—on label.

LOUISIANA—Mark W. Mitchell, 820 Tulane, Lafayette, La., in his letter dated Dec. 31, 1954, writes:

"After checking into the matter of good halite crystals from salt mines, I find that most of the salt from the mines in South Louisiana is massive and without

good crystallization. The good crystals I have are from the Winnfield dome in North Central Louisiana. I hope to get up there soon and obtain a nice supply."

MAINE—Wm H. Robbins, RFD 1, Hampton, Conn., found some green radiating xls of epidote in dark greenish impure limestone near Moosehead Pond, Bridgeton, Cumberland Co., Maine.

MARYLAND—The following item, dated May 27, 1955, was sent in by Ned Blandford, Box 114, McLean, Virginia.

"Here's a short note of interest to most readers which you might work into the World News column on Maryland. Last fall a small group of Washington, D.C., collectors visited the Ben Murphy Mica Mine in Howard County. The mine is situated about ½ mile SW of Scaggsville, Md., on the new U. S. #29 and is an old property. Recently, however, it has been reopened due to the Government demand for beryl and mica and a little work had been done prior to our visit. Among the material examined and while looking for garnet inclusions in the mica, I noted small flattened included xls of deep green color, which at times were quite numerous among the mica plates. Their average diameter was about 2mm and one specimen attained a maximum of about 4mm in diameter. These green xls were translucent when the mica was held before a light and in a closer examination that evening at home under a microscope, another unknown mineral was revealed as minute radiated orange-brown to amber disks, also inclusions. The latter was suspected as being goethite while the former possibly being apatite or tourmaline. We were wrong on both guesses for after Miss Mary Morse, now with the U. S. Geol. Survey, X-rayed these specimens; the green inclusions proved to be gahnite while the orange disks turned out to be columbite/tantalite. Gahnite is known to occur as inclusions in mica from the Spruce Pine district of N. C. but the bulletin "Minerals of Maryland" fails to mention either of these two species as occurring at the Ben Murphy mine. Also occurring with these two new minerals in the mica were the familiar garnets in flattened xls, xlline plates of quartz, and stains of red hematite. Some of the patterns derived thru the combination of these minerals are quite attractive."

MASSACHUSETTS—"I am sending you under separate cover 2 specimens which came from the waterworks shaft #2 on the nearby Wachusett Dam (near Clinton, Worcester Co., Mass.)."—letter dated Dec. 1, 1954, from Kenneth Rauscher, 10 Clamshell Rd., Clinton, Mass.

One specimen received was pyrite as lustrous brassy-yellow xls in mica schist. The other was a nice clean mass of smoky quartz.

MICHIGAN—Marcasite (pale brassy-yellow masses) is common in black shales near Antrim in Huron Co., Mich.

MINNESOTA—A beautiful slab of red and black granite, labeled "Flambeau Granite" has been donated by the Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa. The locality for the specimen are the granite quarries at St. Cloud, Stearns Co., Minn.

MISSISSIPI—Round jasper pebbles have been found on the beach at Gulfport, Harrison Co., Miss.

MISSOURI—Two polished marble slabs from the marble quarries at Marlo, St. Genevieve Co., Mo., have been sent us by the Pocono Mineral Shop, 21 Park St., E. Stroudsburg, Pa.

One slab labeled "Gray Diorado Marble" is dark gray with thin blackish streaks. The other labeled "St. Genevieve Golden Vein Marble" is brownish with grayish designs.

MONTANA—Last December we received some notes on Montana from Gerald J. Navratil, 243 Farragut Parkway, Hastings on Hudson, N. Y. Through an oversight the notes have been overlooked, for which we are very sorry. The notes, dated Dec. 24, 1954, are as follows:

"I have recently returned from working in Libby, Montana, where I was working for the Forest Service and had occasion to visit many of the now abandoned mines

of that area and wonder if in previous issues, this area has been covered by some previous reports of rockhounds. All summer and part of the fall, I never once observed another rockhound on any of the dumps of about a dozen mines and prospects which I visited. This area was once important in the first quarter of this century and some mines produced large shipments of gold, silver, lead and zinc. Some scheelite and copper was also produced.

"If this area hasn't been "written up" as yet in the magazine and you'd like more detailed coverage, please notify me and I'd be delighted to supply detailed maps and descriptive literature. As you can see from the map (not printed), I've included only a dozen or so of the mines. There are three of those included, the Snowstorm, Midas and Lukens Hazel (Glacier silver-lead) which produced for my collection of fluorescents— mostly calcite and scheelite."

NEBRASKA—Nice specimens of agatized and opalized wood have been found at West Point, Cuming Co., Nebr.

NEVADA—Galena, the chief ore of lead, has been mined at Galena, Washoe Co., Nev.

NEW HAMPSHIRE—John Dillingham, Naples, Me., has sent in two interesting specimens that he had collected at the Lovejoy's gravel pit, near Conway, Carroll Co., N. H. One specimen consisted of white albite, flesh-color mircrocline and dark smoky quartz-all xled on gray granite. The other was gray granite much of whose feldspar was pale green amazonstone. Opal hyalite, as a thin colorless crust that fl. green under the Mineralight, covered part of the granite.

NEW JERSEY—"I have some crystals in calcite that are stumping me. I am sending you a spare specimen that I don't need.

"The specimen were found at the Buckwheat Mine dumps at Franklin, Sussex Co., N. J."—letter dated June 10, 1955, from Raymond Lasmanis, 49 Orchard St., Roslyn Heights, L.I., N.Y.

The specimen received is a chocolate-brown Titanite.

NEW MEXICO—H. E. McLellan, Rt. 1, Box 39R, Roswell, N. Mex., in his letter dated April 12, 1955, writes:

"I am sending you some blue crystals that I got out of my mine and they will glow in the dark when heated. They come from a deposit I am mining for uraninum. Will you please tell me what they are."

The crystals are purple fluorite.

NEW YORK—From Bull Hill, Bear Mt. Interstate Park, Orange Co., N.Y., we have a very dark green xled mass of augite. The specimen was donated by John S. Albanese, P.O. Box 221, Union, N.J.

The following letter, dated April 27, 1955, comes from Raymond Lasmanis, 49 Orchard St., Roslyn Heights, L.I., N.Y.

"A while ago I obtained a copy of R& M from Mr. David M. Seaman of the American Museum of Natural History in New York City. I read the copy from cover to cover and then decided that I, too, should subscribe for such a worthwhile magazine. Enclosed is a three dollar money order for a one year subscription. At the same time I am sending you some marcasite specimens.

"These specimens are found at Glen Cove (Nassau Co., N. Y.), about 300 yards south of Glen Cove Public Beach on Long Island. In order to find these specimens, however, one must go out at low tide since the majority of the lignite beds are exposed when the tide recedes. The lignite beds (in which the marcasites are found) are part of the Cretaceous of Long Island. Many marcasite nodules are found here by local kids.

"Across the bay (Hempstead Harbor) a similar cliff has been exposed at the IBM Country Club, Port Washington. This I investigated and a similar occurrence of Marcasite is found.

"But the way, I am 17."

Some very lustrous, brassy-yellow, xled, marcasite nodules associated with black lignite, have been received from Raymond.

NORTH CAROLINA—From Democrat, Buncombe Co., N .C., we have an interesting specimen consisting of greenish veins of genthite with whitish quartz

in a brown cellular quartz. The specimen was donated by Col. Orville M. Hewitt, 6 East Forest Road, Biltmore Forest, Asheville, N. C.

NORTH DAKOTA—A grayish cellular mass of petrified wood has been sent in by Mrs. Paul A. Bens, 1324 So. 1st St., Aberdeen, S.D. The specimen comes from the Badlands near Amidon, Slope Co., N.D.

OHIO—"Did you ever see any variegated catlinite (pipestone)? We have it here. Deep red, mixed all through by bluish gray. Will send you a specimen."—letter dated Jan. 20, 1955, from L.F. Grashel, 1702 Highland Ave., Portsmouth, Ohio.

The specimen was received, a deep red mass mottled with bluish-gray.

OKLAHOMA—From Waynoka, Woods Co., Okla., we have some round, gray selenite (gypsum) nodules—3 of them. One has been sanded and sprayed with liquid plastic to form a very lovely "polished" ball which has diamond patterns and a mother of pearl luster—very, very nice. It has a 2½ inch diameter. The finder, Mrs. Kennedy, calls them Rattlesnake Eggs, and the name seems very appropriate. The other two specimens are rough nodules, 2 inches in diam. These nodules have been donated by Mrs. Marie Kennedy, 737 West Kansas, Blackwell, Okla. Along with the specimens, came the following letter, dated May 6, 1955.

"I've enjoyed reading your magazine very much. I've noticed that subscribers send you rocks and stuff. Sez I to myself—now what can I send that feller that he hasn't seen, hah! Then I think—I'll bet he hasn't seen a Rattlesnake Egg! I know he's seen Thunder Eggs and other nodules, but Okla. has snake eggs—sending one to prove it.

"Over in the western part of the state they have their Rattlesnake Roundup every spring. A few years ago my husband and I thought we would drive over and prospect in those hills just to see what they had to offer, besides snakes. We found some very interesting nodules that seem to be a gypsum ball coated with selenite. In some specimens the gypsum is almost fine grained enough to be classed as alabaster: The interesting feature, is the way the selenite fits into the nodule. It's little pieces like a patch work quilt or a jig-saw puzzle. Some of the pieces have diamond shape patterns. They glistened in the sun. We gathered a sack full and brought them home.

"I tried scrubbing the nodules with a brush but selenite looks dull when scratched. Finally we tried sanding them and spraying with liquid plastic. That did the trick. It brought out all the beauty. They look like mother of pearl, and the diamond patterns show up nicely.

"Now what should we name them? I thought of Alabaster Ball but the gypsum is too soft and with the selenite shell it needed a better name. The Sunday after we made our trip they captured 1500 snakes (alive) in those hills. I decided on Rattlesnake Eggs as a good name. Hope you like it."

OREGON—Multnomah Minerals, Box 7131, Multnomah, Ore., has sent in a dark reddish-brown mass of bauxite which comes from Mountaindale, Washington Co., Ore. In reply to our request for some information on the locality, we have the following letter dated May 16, 1955, from Mrs. Norris Jensen:

"I am so glad you liked the mineral specimens.

"I called Ralph Mason yesterday for more details on the bauxite. He discovered the deposit several years ago. It extends over large portions of Columbia and Washington counties, which lie northwest of Portland, and even across the river into Washington. There are other smaller deposits around the state, he said, altho the one in Marion county is called gibsite. This particular source Mr. Mason discovered apparently is quite large and has been taken over by the Aluminum Company of America which already has spent over a million dollars on research in the area. Technical facts are: thickness of ore runs from zero to 50 feet; grade silica content is 10%, and the alumina content 35%. The area is not being developed and there are no immediate plans

by Alcoa for doing more, as it is now considered a resource available when needed.

"I went looking for it one day and got as far as Mountaindale (Washington county) ,which is little more than a junction in the road. After talking with several people I decided to go back another day when I had more time. Everyone had heard about the deposit, but the ones I talked to weren't sure just where it was! Mr. Mason told me afterwards that I was close but should have gone on another half mile. He said he was going up there and would bring me some samples, which he did and which is the one I sent you."

PENNSYLVANIA—Howard V. Hamilton, 115-B East Adams Ave., Vandergrift Pa. (our Fossil Department Conductor) has sent in some items consisting of two pages taken from the *Pittsburgh Press*, Sun. May 1, 1955. These items, with 3 illustrations, center around the mineral collecting activities of Mr. and Mrs. Michael Krajnak of Davidsville, Penn., and were written by Acker Petit, Press Special Writer. One paragraph reads:

"Petrified wood collectors can find it lying about on top of the earth in Westmoreland County (Penn.), not over 40 miles east of Pittsburgh. It may come as a surprise to many, but monks and priests at St. Vincent College (in Beatty) have been collecting petrified wood for years right on the college campus. Also on the campus and in the immediate vicinity there is a good gem-quality flint that is found along the Lincoln Highway."

RHODE ISLAND—Red Ochre, the earthy variety of hematite, has been found on Block Island (Rhode Island's famous summer resort in the Atlantic Ocean). Block Island is 8 miles long, from 2 to 5 miles wide, and lies 10 miles south off the coast of Rhode Island.

SOUTH CAROLINA—Very fine xls of amethyst have been found near Moffettsville, south of Iva, in Anderson Co., S.C. The xls were found in pockets in mica slate.

SOUTH DAKOTA—From a gravel pit near Lemmon, Perkins Co., S. D., we have a specimen that has been sent us by Mrs. Paul A. Bens, 1324 So. 1st St., Aberdeen, S.D. The specimen is a dark red (almost black) cellular mass of hematite—it looks like a clinker.

TENNESSEE—Barite is found in veins in dolomite in Greene Co., Tenn., near Greeneville.

TEXAS—A large group of large platy brown xls of selenite (gypsum) which fl. olive green under the long wave, was donated by Vance Tankersley, Box 21, Sierra Blanca, Texas. This handsome specimen is known as the Desert Rose.

"The Desert Rose—from out of the desert of the great southwest. A rare, native rock formation of bladed, cyclic, penetrating, twin crystals of selenite (crystallized gypsum) containing iron and showing phantoms.

"Fluorescent and phosphorescent. One of nature's loveliest and most interesting creations."—on card with specimen.

As so many collectors have purchased these attractive specimens we petitioned Mr. Tankersley to send us a few notes on the occurrence. Here is his letter dated April 20, 1955.

"The occurrence of the Desert Roses is in the red beds of North Central Texas.

"I have the property leased and do not like to pin-point the location, due to so many hounds hounding the owners of the property.

"The Roses rest on a clay base and grow upward in a very loose gypsum sand for about 2 feet. Horizontally the bed originally extended for 50 or 60 feet, with quality of crystals varying considerably. The bed lies about 20 feet below the surface in an arroyo or dry creek. The cut of the creek exposed the outcrop and the oldest cowboy (85 years old) working on the ranch (55 years) said when he first started work on the ranch; the old timers then used the area for a picnic ground and would wonder and marvel at the stone; but nothing was ever done about it. Of course when I saw the Roses—it was too bad—or maybe too good. Owing to whom you talk."

UTAH—Rhyolite, banded red, brown, buff and white, forming attractive masses, occurs near Vernon, Tooele Co., Utah.

VERMONT—A beautiful slab of white marble, labelled "Highland Danby Marble", with one face polished, has been donated by Pocono Mineral Shop, 21 Park St., East Stroudsburg, Penn. The locality for the specimen is Danby, Rutland Co., Vt.

VIRGINIA—The following letter, dated May 11, 1955, comes from Fred M. Davis, 25 N. Princeton Circle, Lynchburg, Va.

"Within the city limits of Lynchburg, (Campbell Co.), Virginia, there is quarried a natural stone of a grayish-green color, known as Virginia Greenstone. In the 1942 report of the Underwriters' Laboratories it is stated to be the only known workable surface deposit of this stone'. The stone is found, however, in at least two locations contiguous to Lynchburg.

"Described as an actinolite—chlorite schist which is a metamorphic rock probably of sedimentary origin, the stone appears to be composed mainly of two minerals, one of which, actinolite, is a calcium-magnesium-iron silicate, and the other, chlorite, is a hydrous silicate of magnesium, iron, and aluminum. In the hardness scale, the actinolite is given as from 5 to 6; the chlorite is given from 2 to 2.5. Both minerals are crystalline in structure and of a greenish color.

"The actinolite crystals are scattered throughout the mass of chlorite crystals, thus forming a structure similar to that attempted in the manufacture of artificial anti-slip by the mixing of abrasive particles with softer materials such as metals and terrazzo.

"The chlorite crystals are nearly parallel to each other in mica-like layers running parallel to the natural bedding plane of the original stone. The actinolite crystals appear scattered throughout the chlorite matrix in an irregular manner both as to spacing and direction.

"The stone is being used for flooring, stairways, store fronts, and exterior building ornamentation. It appears in many public and commercial buildings and has been installed as far west as Pearl Harbor.

"Similarly to going to fruit orchards and carrying your own containers. I shall be willing, for a limited time, to send specimens of Virginia Greenstone to readers of ROCKS AND MINERALS, provided they send me a self-addressed, stamped container (9¢ in stamps should be sufficient), the inside of the container to have a capacity of around two inches in each direction to give room for packing."

Small loose, dark brown cubes of limonite pseudo, after pyrite, have been received from D. D. Litteral, Box 183, Dublin, Va. The cubes occur at Woodlawn, Carroll Co., Va. In his letter, dated May 17, 1955, Mr. Litteral writes:

"The cubes are found near Woodlawn on a dirt road that runs south from U. S. 58 (a few miles northeast of Woodlawn). On leaving U. S. 58, drive 2.8 miles south and the cubes are found on the surface of the left side road bank."

WASHINGTON—Basalt, a dense to glassy dark-colored volcanic rock, is the most abundant surface rock in Washington. It is quarried in many counties for use as crushed stone for ballast, road metal, concrete etc. At Spokane, Spokane Co., groups of small, brilliant, glassy xls of aragonite have been found in basalt.

WEST VIRGINIA—The following item, dated April 20, 1955, was sent in by Mrs. Sylvia E. Czayo, 6101 N. 28th St., Arlington, Va.

"Under separate cover I am sending you a specimen of native sulphur on calcite. This was found by me in a rock quarry 7 miles west of Wardensville, Hardy Co., W. Va."

The specimen consisted of a sulphur-yellow mass (native sulphur) on white xline calcite. Sulphur is widely distributed throughout the world but is chiefly found associated with gypsum; it is rather an unusual occurrence to have sulphur associated with calcite, so Mrs. Czayo, a novice collector, is to be congratulated on her find.

WISCONSIN—Dark reddish to black cellular masses of goethite pseudo. after hematite, have been found in Gile, Iron Co., Wisc.

WYOMING—A small group of green fibrous malachite xls on whitish xline calcite, has been donated by John S. Albanese, P.O. Box 221, Union, N.J. The specimen comes from Rawlins, Carbon Co., Wyo.

CANADA—In the last issue of R&M (May-June, p. 263) mention was made of a remarkable specimen of Nemalite (fibrous Brucite) that had been found in the Province of Quebec, Canada. The item was sent in by John W. Edwards, 305 Avenue Rd., Toronto 7, Ont.; Canada; part of the item reads:

"I have just received some fibrous Brucite, more properly called Nemalite (see Dana). The specimens are transparent, and—most of them, that is—between nine feet six inches and ten feet long. They were coiled-up into a ten inch coil when I received them and when I untied the strings around them, they literally flew out straight again, just as though they were made of spring steel."

Another letter dates June 12th, 1955, has been sent us by Mr. Edwards. In it he writes:

"Just a brief note to let you know that I have heard from Mr. Charles D. Borror, Chief of the Fibers division of the Johns-Manville Co. in Canada, who is at present visiting the asbestos deposits in South Africa. He writes that it is quite alright to publish the information on the Nemalite.

"The Nemalite was taken from the Jeffrey mine at Asbestos, Que., Canada, about 15 years ago by Mr. Borror himself. A monograph on the occurrence was written by a geologist from Columbia University (in New York City) in 1935; Mr. Borror will try to locate this monograph when he returns to Canada..

"Mr. Borror informs me that back in 1939 when the geologist referred to above was at the Jeffrey mine with him, he was told by the geologist that the only other place in the world where fibrous Brucite was known to exist was somewhere in South Afria. Now while in South Africa Mr. Borror has mentioned this occurrence to the local general manager at Mashaba and was told that fibrous Brucite is found in limited quantities at the King Asbestos mine at Mashaba and in the Ethel mine at Mtoroshanga, both in South Africa of course.

"I have presented my longest specimen of Nemalite (over 10 feet long) to the Royal Ontario Museum here in Toronto."

CZECHOSLOVAKIA—A deeply pitted, black, rounded pebble (dark grayish-green translucent on a thin edge) has been received from Peter Th. Arnold, Hansastr. 56, Hamburg, Germany. The label tells us that it is a tectite, var. moldavite, from Netolitz, South Bohemia, Czechoslovakia.

"The moldavite specimen I sent you is a remarkable one as for size and the 'melting holes and lines'. I might also mention that I am in possession of a good collection of tectites containing australites and billitonites, too."—from Mr. Arnold's letter dated May 10, 1955.

CEYLON—Fritz G. H. Carlson, 12 Beach St., Fairhaven, Mass., has spent in a number of pure, lustrous dark gray masses of graphite varying in size from 1 x 1 up to 2 x 2 inches.

"Graphite from the mines near Colombo, Ceylon."—on label.

ENGLAND—Here is a bit of interesting correspondence from our good friend in Scotland, Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland.

"Sent Mr. Cooper some labradorite so that he could get a facetted stone for his collection and he in turn sent me 3 selenite xls. Thought you might be interested so I wrote and asked him for more particulars about the xls, told him I was sending you one to report in 'World News'—.

"The reference to throat-cutting in his letter was due to me asking him for some item of interest about the locality even

if it was just a case of throat-cutting."—letter dated March 28, 1955, from Mr. Ramsay.

Two loose, grayish translucent selenite (gypsum) xls were received; they come from the Isle of Thanet, Kent, England. (The N. E. corner of the county of Kent is known as the Isle of Thanet).

Here is the reply, dated March 25, 1955, from Mr. P. J. Cooper, 65 Jeffery St., Gillingham, Kent, England:

"I am glad to know you found the selenite of interest and hope the following information may be also.

"You are right, it is 'Isle of Thanet', though strictly speaking one has to use a little imagination now to see it as an island. The old channel between it and the mainland is very much silted up now, and there remains only a narrow stream.

"The specimens were found on the north coast near Reculver, in masses of fallen clay of Eocene period occurring between the horizon of Thanet sandstone and London clay.

"The most frequent occurrence would seem to be as small twinned crystals but there are also single crystals and occasionally a very large interpenetrant group. Some of the smaller crystals are of almost perfect monoclinic form but the large groups are usually less perfect in form and transparency.

"As to the history of the Reculver area it could and in fact does fill many volumes. There have been excavations on the Isle of Thanet of early Saxon and Jutish graves which yielded samples of early jewelry. Gold brooches inlaid with garnets and necklaces of amber were the most predominant. I have also seen one or two pieces containing jet and quartz.

"At the moment I could not recall any specific instance of throat-cutting but the area was quite well known for smuggling at one time and is mentioned in the Ingoldsby legends. I hope these few facts will suffice for now but I can always give you further details if you wish."

FRANCE—John S. Albanese, P.O. Box 221, Union, N.J., has sent in a very nice quartz xl group (parallel growth of smoky quartz xls).

The locality for this fine specimen is De Sarolay (Cheratte), France. "From P. Destinez Collection"— on label.

ITALY—Two beautiful marble slabs have been received from Pocono Mineral Shop, 21 Park St., East Stroudsburg, Penn.

One slab is gray (one face polished) showing wavy structure and labelled "Ondagata Marble from Fojo, Italy."

The other slab is a pinkish, brown, white, yellow variegated marble (one face polished) that fl. brownish in spots under the long wave. Its label reads "Rosora Marble from Verona, Italy."

SCOTLAND—From Flodigarry, Isle of Skye, Scotland, we have a group of analcite xls with colorless stilbite xls on red trap rock. The specimen was donated by John S. Albanese, P. O. Box 221, Union, N.J.

SPAIN—Juan Montal, Plaza Sagrado Corazon 1, Villafranca del Panades, Spain, has sent us an interesting specimen, zeyringite. The zeyringite occurs as a greenish-bluish glassy crust on a pale greenish, compact-fibrous aragonite, and the locality is Peramea, Lerida Province, Spain.

SWEDEN—A pale greenish radiated fibrous tremolite and coming from Fahlun, Sweden, was another fine specimen sent us by John S. Albanese, P.O. Box 221, Union, N.J. Its label tells us that the specimen is from Lord Calvert Collection.

One of the oldest copper mines in Europe is in Fahlun.

SWITZERLAND—Still another delightful surprise sent us by Mr. Albanese, of Union, N.J., is a loose rock crystal with green chlorite inclusions. The crystal comes from Cavagnoli Bavona, Leventina, Switzerland.

We are deeply grateful to Mr. Albanese for his warm interest in our "World News" department.

LOOKING BACK TWENTY-FIVE YEARS AGO

in Rocks & Minerals Sept. 1930, Issue

MY MINERAL DISCOVERIES SINCE 1879, by William Niven, pp. 73-76. In his day, Mr. Niven was considered to be one of the greatest field collectors known. A rare mineral, nivenite, was named in his honor.

WATKINS GLEN, by Eugene Blank, pp. 78-82. Watkins Glen, in Central New York, is famous for its beautiful gorge and waterfalls, and is a favorite tourist attraction. Three full page photos illustrate the article.

A REVIEW OF RADIOACTIVITY AND GEOLOGY, by Thomas W. Fluhr, pp. 84-88. This is the first of a long series of geological articles that Mr. Fluhr had prepared for ROCKS AND MINERALS and he may prepare more as he is still with us.

Collector's Column

Conducted by A. Cal Lector

This column, designed to be a help to beginners in mineralogy, started with the September - October 1948 issue. In the last issue we looked at Lepidolite. This time our subject is Limonite, another of the iron minerals, and occasionally used as an ore of iron.

Limonite

Limonite is made up of hydrous ferric oxides of rather indefinite composition. Much of the material with a fibrous internal appearance formerly classed as Limonite has now been listed as Goethite. The name Limonite is continued to refer to natural hydrous oxides of iron whose real identities are unknown. The name Limonite is adapted from the Greek term meaning meadow alluding to the common occurrence of the ore.

Limonite is amorphous, that is, without crystalline form. It occurs in botryoidal crusts, stalactites, earthy masses and as powder. It has been observed as the petrifying matter of wood and leaves. Limonite occurs in various shades of brown and brownish-black. The botryoidal and stalactitic forms often show iridescence. It ranges from 1 to 5.5 on Moh's scale of hardness and gives a brown or yellow-brown streak. Limonite frequently occurs as a pseudomorph after pyrite, marcasite and siderite.

Limonite is so common that a list of localities would be large and difficult to give. The writer has a specimen of iridescent botryoidal Limonite labeled Fleetwood, Berks County, Pennsylvania. Fine specimens of Limonite pseudomorph after pyrite have been found in clay in the Lake Mountain near Pelican Point, Utah County, Utah.

May we suggest that Limonite be added to your collection today?

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.
640 Alameda Blvd., Coronado, Calif.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

MAKING DIAMOND PAPERS

The faceter and, sometimes the cabochon cutter, soon meets the problem of adequate and safe stowage for his cut gems after engaging in his hobby for a short while. Placing gems loose in a cabinet or drawer is unsatisfactory if any chance exists for stones to collide with one another when a drawer is opened or closed. The most satisfactory solution appears to be the use of the time-honored "diamond papers", special wrappers which fold in a certain way and which may or may not use inner wrappers. Sometimes the inner wrappers are colored purposely to provide an effective background to emphasize the color of the stone being displayed, but in general, the amateur should be satisfied with plain white color for his wrappers. Since factory-made diamond papers are difficult to obtain and cost five cents or more per paper, the economy-minded amateur will be interested in making his own according to the instructions to follow. The author uses similar papers almost exclusively and has found them as fully satisfactory as professional kinds.

The starting point for home-made papers is airmail stationery in pad form, usually sold 40 sheets to a pad. Eaton's papers have been found excellent for this purpose, being tough, thin, and susceptible to erasure of pencil notations placed on the outside of finished wrappers. From this point on, consult the diagrams furnished to visualize the exact instructions given. Prior to doing any folding, mark the edges of the pad as shown in Figure 1, using a heavy black pencil and being sure that each sheet bears corresponding marks. These marks will insure that identical finished papers will result. *Do not mark the surfaces of the sheets* - this is not necessary. In Figure 1, point F is selected so that when both sides of the sheet are folded inward, their edges will almost meet in the center.

STEP 1. Mark the sheets as indicated in Figure 1.

STEP 2. Fold the sheet upwards bringing the bottom corner A up to E. Crease at C

STEP 3. Bring C up to E and make a light pencil mark at the point indicated. *Do not crease at D.* This mark will serve as a guide to vertical folds.

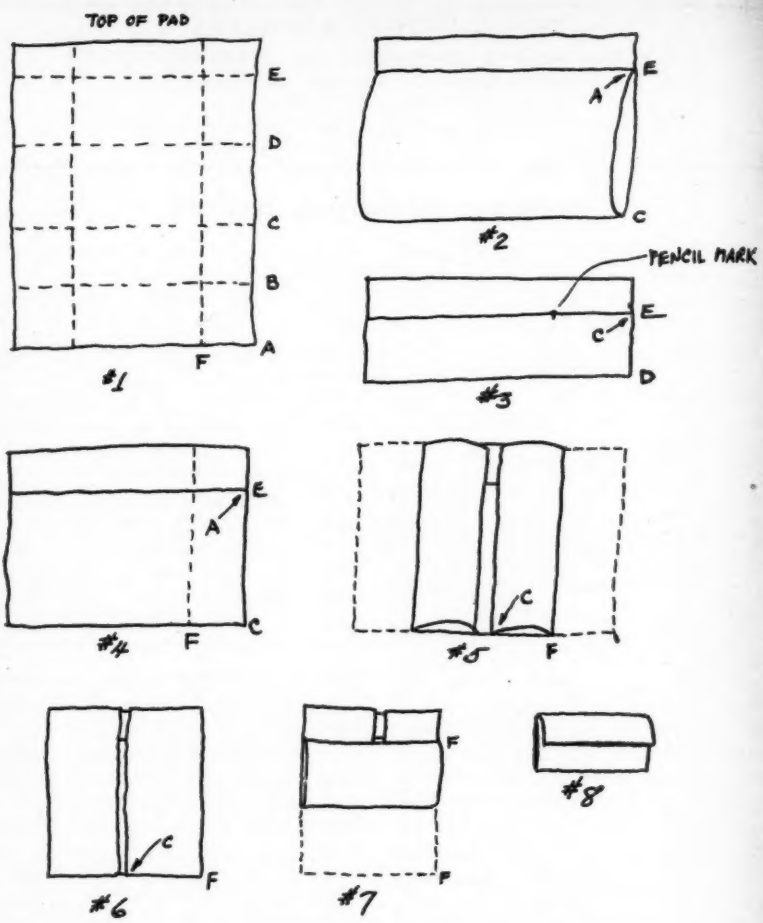
STEP 4. Fold back the sheet as shown in Figure 4, and then fold and crease inwards as shown in Figure 5. When finished, the result will be as shown in Figure 6.

STEP 5. Fold the bottom upward as shown in Figure 7: crease.

STEP 6. Fold down the flap as shown in Figure 8; crease. Go over all folds to get a good crisp crease, you are now finished.

Airmail stationery comes in different sizes and different thicknesses and it is possible to make large and small papers. Exceptionally thin papers can be doubled to give an outer wrapper and an inner wrapper; this sort of paper is very useful for a large number of loose stones or stones which are heavy or bulky.

In professional papers, small pads of cotton are often provided for stones to rest upon and to prevent them from shifting position during handling. A most satisfactory substitute for these can be made from cotton cosmetic pads which are currently for sale at beauty counters. These pads are called "Coets" and are quilted in construction to prevent unraveling. Each pad can be cut in half to provide suitable diamond paper liners, or, if extremely delicate and soft stones are being preserved, they can be folded over the gem to prevent possible scratching from direct contact with the paper.



Steps in making diamond papers.

Learned a lot from R&M

Editor R & M:

By all means, please renew my subscription to ROCKS AND MINERALS. I enjoy it very much and it has taught me a lot about minerals and geology in general.

Thank you for putting my name in the novice column. I have received one nice specimen already.

Hunter Ware
301 Ave. E.
Va. Beach, Va.

May 11, 1955

Back issues very useful!

Editor R & M:

I am enclosing a money order for a list of back issues of ROCKS AND MINERALS. The issues wanted are listed on separate sheet of paper.

I want to say that I have found back issues very useful in locating good collecting areas and have used the information as a guide to identification of specimens collected.

Sydney C. Jordan
Route 3, Box 373
Memphis, Tenn.

May 7, 1955

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

Ever since the early days of fluorescence there has been a need for a small compact U.V. unit which could be carried in a jacket or overall pocket. Miners, especially, were the first to wish for some small type of unit. Some day we may be able to buy a short wave lamp as compact as a flashlight and operated from the regular flashlight batteries. For the present, miners who have access to long wave fluorescent minerals en situ, in the mines (in place) should welcome a new flashlight fitted with a Corex long wave filter. We have tried it on Fanklin, N.J. type brightly fluorescent minerals and find that the new flashlight really works.

Philip S. Danenberg, whose ads regularly appear in these pages, and who has faith in the M.S.G. department, sent us a trial unit. We do not yet know the price. Suffice to say that the unit will show fluorescence. Not all long wave minerals are strong enough to react, but we can see great possibilities in its use away down deep in the dark of the mines. Some strongly fluorescent radioactive minerals will react sufficiently to locate fluorescent minerals. Mr. Danenberg also sent us a nice packet of superbly polished baroques in aquamarine, topaz, green tourmaline and others. Also, in the package were samples of aluminum chain in delightful pastel shades derived from a process so familiar on the metal drinking tumblers.

We made a very purty tie-clip and fastened to it one of Captain George W. Owen's opal doublets which he is making to sell for a buck. Very pretty, Mr. (Captain) Owens. Address, Box 1206 Ellington AFB, Houston, Texas.

Mr. W. M. Mullins, 405 Ann St., Garland, Texas, sent us a sketch of a much simpler device to show continuous phosphorescence. Spheres are not needed in this unit. Under the top of the box there is a spinning disc in which are cut two curved and oval slots near each end of the diameter line. The lid of the box also has two such slots to match those in the disc. One slot is for viewing, the other for admitting the short wave or other U.V. light source. A motor, inside the box, spins the disc and a make and brake in the appertures allows the viewer to see only the phosphorescence of the specimen placed on the floor of the box. Neat? We all thank Mr. Mullins for this idea. We are sure to rig up this more simple method.

A package came the other day from Mrs. Helen Bradley of the Monadnock Mineral Shop fame, Marlboro, N.H. It contained several pale colored beryl crystals on which were many flakes of possibly autunite inbedded in the surface of the beryl. Also, a specimen of hexagonal and flat topped calcite, a rather rare type of calcite from N. H.

That strike of tourmaline made some months ago in Maine has been heard about in nearly every corner of the world, by this time.

A lot is seen and heard about Unakite recently. We have not seen the very best in the world, perhaps, but we have seen quite a bit of the many types. To us, the dense boulder type from Virginia holds together best but it lacks color contrast and it is difficult to polish. The better colored chunks, some of which contain many cavities and stains of iron is difficult to saw in that it does not hold together very well, at the saw or on the wheels. Perhaps the very best type has escaped our notice and we will reserve opinion until we do see it. However, the Pennsylvania type, and there are many different densities and patterns at the one locality which we reported as having discovered recently in Berks County, Pa., is

beautifully banded in light and dark Unakite hues. It takes a swell polish, not each type without some slight undercut occasionally, holds together at the saw and at the wheels (even when the piece flies out of the hand and hits the cellar wall), and generally presents a beautiful banded pattern which looks as though the material should have come from Solomon's Mines. The polish is superb. We promised to report the results of working up this new material.

The following may be an observation worth passing along to those who process tumbled baroques. We all have been aware that certain minerals such as jade, rhodonite, some unakite types, thulite, sodalite and others are difficult to polish the way they should be polished by using the conventional lapidary methods. Oddly, these types come to a quick polish in the tumbler. The most amazing is thulite, that strawberry-pink cake icing colored mineral from Washington which was advertised some issues back by the Caribou Mineral Shop. We tried everything in the books to polish thulite but it remained for the tumbler to really do the job superbly.

Another call for help comes from Mrs. Hilda Chance of Linwood, Pa., in Delaware County. She would like to duplicate a very beautiful type of jasper or jasp-agate which originally came from a source or locality in Kentucky. This jasper has wavy streaks and bands of the most vivid red in a dark background and it takes a most beautiful polish. Does some reader know the locality and will he or she forward this information to us? The only place name known is Pinnacle Rock and that does not mean that the red banded material came from there or near there, but it can be a clue.

If you want a good piece of Clinohedrite, Scientific Laboratories of 2846 Oakley Ave., Baltimore 15, Md., can supply this and other unusual items such as meteorites at very low prices. Their ad appeared in the March-April issue, Page 181.

Tumblers who wish to finish the more gemmy types should look at the International Gem Corporation ad on page 188 in the March-April. Golden Topaz, Peridot and such luscious items!

Fluorescent chalk (stick form) and grease pencil crayon in various vivid colors which fluoresce very well in daylight are now available from Ultra Violet Products, Inc. Sets of colors are inexpensive. Mineral collectors who dabble in art and sign or label making should find this firm's complete list a very interesting one. One of the pencils will write in invisible markings. Most dealers, who supply Mineralights, can supply.

We revisited a very old locality in Chester County some weeks ago just to see if we still knew where it was and have a quick look around. It was the old General Trimble Phosphate (Wavellite) mine which used to be quite near the famous Foote Mineral property. Chester County, Pa., is a little north and west of Philadelphia. Sad to say, this locality is no more. The small cow-wallow or frog-pond is even gone and a huge gas or oil plant is now on the very spot where turquoise ceruleolactite in opaque and semi-translucent masses were found many years ago. Houses and other buildings are built right over the old diggings and the beautiful micro crystals of wavellite, aragonite and clear crystals suggesting harmotome are no more. We could cry if it were not for the fact that we have a cigar box full of these lovely micro crystals from this spot.

Not too long ago our son-in-law, his brother, and the writer, rode through back roads and by-ways in Berks County, Pa. A very sensitive radioactive detection device was held by Leroy, the son-in-law, while the car was driven at thirty miles per hour. The meter registered interesting counts in many rock fences and outcrops. A few of the more reactive rocks were later collected at the strongest points along the road. One barn along the way is built of rather interesting rock, a type of conglomerate containing possible uraninite, smoky quartz, amethystine quartz, sandstone and weathered substances of a peculiar tan-yellow which may prove to be the chief reacter. Mobile radioactive detection is the thing. It precludes trouble with getting permission to make a

search. This will get to be quite a problem in the east if so-called prospectors with counters continue to walk on private property without getting consent of the owners. It is so easy to ask for permission and cooperation is almost always assured.

Among some of the very highly polished baroques we have received through purchase and samples submitted to us for examination, we noticed some very interesting nuggets. One is a rose quartz with quite a bit of moonstone chatoyance from the Gemcrafters and their blue and natural tiger eye has a polish not often seen in this material. Trinityite with copper is another lovely unusual baroque material which make beautiful bracelets. Dealers should contact Shirey for the latter.

We cannot pass along without mentioning a new company formed and in operation in El Paso, under the name of Border Agate and Minerals Co. It seems to us 'way out here, that El Paso is fast becoming a mineral and gem center of the U. S. It is small wonder, being so close to our neighboring country, Mexico. Mexican gem stones do compare favorably with any other country. Mexican agate, amethyst, opals, zinc, iron, copper, lead, silver and other interesting minerals are most of the time exquisite specimens.

One cutter we know claims she has cut twice as much so far with her new Taro. Diamond Saw blade without a sign of wear in the blade. She says it is fast and clean and, she will not go back to using any other type. Well! We will try it, too. This testimonial is available to those interested. The blades cost no more than regular type blades. R & B Artcraft Company can supply.

Minerals Unlimited have printed a five page brochure filled with interesting and important items which are radioactive and which fluoresce. Their address is 1724 University Ave., Berkeley 3, Calif.

We cannot understand why so many of our lapidary friends use any old grinding wheel (some made for other purposes by well-known firms). It is not the fault of the firm who made the wheel. Why not learn about wheels for your purpose by writing to Lapidabrade Company in Red Hill, Penna? We use the wheels and recommend them highly. It takes no time to shape up the toughest type of jade or jasper on their code "D" wheels in various grit sizes. We can help you if you wish to contact us.

Few of us can get to Egypt. Those who visit on a tour will have little time to collect anything like Dr. C. H. Barlow has come home with. It looks as though the Egyptian Rambler is home for good. He can slab your material and sell you some interesting slabs cut from Egyptian agate pebbles and banded jaspers.

We note, with great satisfaction, that the dealers who try the hardest to please, will send you anything on approval. Dealers who have been through the mill know well, the fact that what will please one customer might easily displease another.

You can get a very lively little publication for one year simply by sending a dollar bill with your name and address to National Prospector's Gazette, Bellflower 56, California. Twelve issues full of stuff dear to the heart of the mineral collector and prospector. Gosh, how can you go wrong?

Leave it to Burminco to come up with some rare minerals. 'Nuff said. Watch their ads in these pages. We cannot and will not guarantee minerals not seen by us, but we have yet to hear of a specimen being called cat ammunition that has come from Burminco. The Burminco specimens that we have seen are above standard quality.

We just cannot help passing along a where-to-get-it item. If you are wondering just what kind of utility cabinet to get to keep all of those sorted baroques and jewelry findings in just write to Clayton Hamilton, 2153 Chestnut Ave., Ardmore, Pa. He can ship all clear plastic units that have drawers a-plenty for really low prices. Actually, we like to think of Mr. Hamilton as a dealer's dealer.

Thank you, Frank Waskey for those kind words. Just when we began to wonder if we should keep going, we get a shot in the arm. The department is a heck of a lot of work and many times we should be taking care of other matters.

Readers will remember Frank Waskey as the dealer who knows the Great North so well and who has so often distributed lovely Alaskan Jade at very low prices for such a lovely green color.

Another where-to-get-it item: That beautiful snowflake obsidian is a W. T. Rogers speciality . . . 1230 Parkway Ave., Salt Lake City, Utah. It is so lovely for Cabochons and tumbled nuggets.

Toupal Brothers sent us a fine spread of Morgan Hill Jaspers in nugget form. Without a doubt, this type nugget is one of the very prettiest. So pretty are they that our friends grabbed them up so fast we will have to order more and hide 'em. Toupal Brothers of 2701, Alum Rock Ave., San Jose, California also tumble many other fine stones of usual and unusual types. The polish is maximum.

NOVICE COLUMN

In the Sept.-Oct. 1953 R&M, Gordon ViGaro, 2231 Pine St., Bakerfield, Calif. suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember the novices do not know one mineral from another, so please be as helpful as you can.

The following is the 11th list of novice collectors.

E. A. Ostrand, 615 W. Alturas, Tucson, Ariz.

Alice J. Volavka, 1255 W. 40th Pl. #108 Los Angeles 37, Calif.

Charles L. Badger (10 yrs.), 1011 N.E. 2nd Ave., Ft Lauderdale, Fla.

Mrs. Robert L. Patton, P.O. Box 803, Apopka, Fla.

Leo M. Burden, Bellflower, Ill.

Mrs. H. Rochette, 423 Blackhawk, Chicago, Ill.

Don Janzen, 690 Waldron St. Lafayette, Ind.

Jerry Lineback, Garnett, Kansas

A. R. Hotchkiss, 7720 Parallel Rd., Bethel, Kansas

Sgt. William J. Malarkey, 80-E. Rose Terrace, Fort Knox, Kentucky

C. F. Wallace, RD #1, Rising Sun, Md.

Millicent Redwitz, 1006 N. Jackson, Bay City, Michigan.

Tom Pappas, 303 West 7th St., North Platte, Nebraska.

Daniel B. Rzeszutek, 787 Genesee St. Buffalo 11, New York

Miss Zalaine Hull, 281 West 12th St., New York 14, N.Y.

Miss Sharon Marie Joy (6 yrs.), 9705 S.E. Fuller Rd., Portland 66, Ore.

Mrs. R. C. Alexander, Park Drive Manor, Lincoln Drive, Philadelphia, Pa.

Dr. & Mrs. I. B. Barrett, 3819 Race Street, Fort Worth, Texas

FOSSIL DEPARTMENT

Conducted by Howard V. Hamilton
115-B East Adams Ave.
Vandergrift, Pennsylvania

FOSSIL COLLECTING IN WESTERN PENNSYLVANIA

Part 1 - The Brush Creek Horizon

Introduction

The rocks of Western Pennsylvania are predominantly sedimentary with clays, shales, sandstones, conglomerates and both fresh water and marine limestones being present. Coal is abundant in many layers sandwiched between these rocks. Glacial debris covers much of the northwestern section. The region is one of many hills and deep valleys where nearly every formation has been exposed, either by stream action or by constuction of roads, railroads, etc.

The entire range of Pennsylvania formations may be observed. In addition to these, Devonian horizons are exposed in the northwestern section, Mississipian horizons are exposed in the southern section and several Permian horizons are available in the extreme southwestern section.

Fossils of this region are largely plant and invertebrate remains. Some vertebrate discoveries have been made most of which were in the Dunkard series of Permian age. Some interesting discoveries were made in the Conemaugh series of Pennsylvanian age in the Pittsburgh district. Shark teeth in the Pennsylvania marine limestones and Pleistocene mammals from glacial deposits are other instances of vertebrates from this region.

The Brush Creek Horizon

The Brush Creek horizon extends over a wide area of western Pennsylvania, eastern Ohio, western Maryland, and northern West Virginia. It consists of a clay, a coal, a dark fossiliferous limestone and dark shales some of which are fossiliferous and nodular. Figure 1 shows a generalized section of this horizon. The formation was named for exposures along Brush Creek, Cranberry Township, Butler County, Pennsylvania. The Brush Creek horizon lies about one hundred twenty-five feet above the Upper Freeport coal.

Fossils

Of the several marine horizons in western Pennsylvania, the Brush Creek is one of the most interesting for the fossil collector. Mr. David Seaman, formerly of Carnegie Museum, Pittsburgh, (now in the Department of Mineralogy, American

PENNSYVANIA AGE CONEMAUGH SERIES		
	BUFFALO SANDSTONE	
	BRUSH CREEK SHALE (Replaced by a red bed in Somerset County)	10-20'
	BRUSH CREEK LIMESTONE	1-3'
	BRUSH CREEK SHALE (Replaced by sandstone in part of Allegheny County)	10-12'
	BRUSH CREEK COAL	1-2'
	BRUSH CREEK UNDERCLAY	1-2'
	BRUSH CREEK FIRE-CLAY SHALE	3-4'
	MAHONING SANDSTONE	

Figure 1. Generalized Section of the Brush Creek Horizon in Western Pennsylvania.

Museum of Natural History, New York City), issued a faunal list for the Brush Creek limestone (1). Seaman reports one hundred thirteen species have been collected from this horizon. He indicates that gastropods are the dominant group with thirty species, ten of which are common. One of these, Worthenia tabulata (Conrad), may be considered the index fossil for the Brush Creek. Other common gastropods are Shansiella Carbonaria (N. & Pr.), Strobeus primogenius (Conrad), Pharkidonatus percarinatus Conrad and Amphiscapha catilloides Conrad. Pelecypods account for thirty-two species but they are not found in as great numbers as the gastropods. The more common species are Astartella concentrica (Conrad) and Allorisma terminale Hall. Nineteen species of brachiopods, twelve cephalopods (one - Pennoceras seamani M & U - was first observed by Seaman), two species of bryozoans, one of coral, one of vermes, four of foraminifera, four of ostracods, one crinoid, one trilobite and two scaphopods have been noted. Six species of shark teenth have been identified. The two commonest varieties are Petalodus ohioensis Safford and Deltodus angularis Newberry & Worthen but these are not abundant. Plant fossils may be found in some of the shales.

Localities

There are many exposures of the Brush Creek horizon in the area. The following are localities where good exposures are available and abundant specimens have been noted:

1. Baltimore and Ohio railroad cut (lower bench) near Glenshaw on Route 8, about two miles north of Etna, Allegheny County, Pa.
2. The fire brick shale quarries at Creighton and Glassmere, Allegheny County, Pa.
3. Road cut along US 422, about one-half mile northwest of Shelocta, Indiana County, Pa.
4. Baltimore and Ohio railroad cut along US 119, about two miles northwest of Marion Center, Indiana County, Pa.
5. Road cut along Route 255 about 1 mile east of DuBois, Clearfield County, Pa.
6. Pennsylvania railroad cut just east of Donohoe Station, about four miles east of Greensburg, Westmoreland County, Pa.

Ohio collectors may observe exposures of the Brush Creek Limestone at the following:

1. Stanton Park along Route 7, about one and a half miles north of Steubenville, Jefferson County, Ohio.
2. Old Glouster Brick quarry, one-third mile south of Glouster, Athens County, Ohio.

Interesting Mineral Association

For those collectors who care to combine mineral hunting with their fossil collecting, there is an interesting mineral occurrence in association with the Brush Creek horizon. Clay-ironstone concretions are common in the shales overlying the limestone. Some of these concretions contain tiny but perfectly developed hexagonal-hemimorphic crystals of wurtzite polymorphs along shrinkage cracks. Other minerals in association with these crystals are platy barite, tiny crystals and plates of sphalerite, tiny crystals of chalcopyrite and tiny crystals and granular masses of calcite. The nodules contain an occasional fossil although they are not common. Seaman found one interesting specimen at Glenshaw (see locality 1) in which the tiny wurzite crystals were deposited between the septa of a small straight cephalopod.

References

1. Seaman, David M.: The Brush Creek Limestone of Western Pennsylvania.
Proceedings of the Pennsylvania Academy of Science, Pages 72-76 Vol. XV1, 1942.

2. Seaman, David M. and Hamilton, Howard: Occurrence of Polymorphous Wurtzite in Western Pennsylvania, American Mineralogist, Pages 43-50, Vol. 35, Jan-Feb. 1950.

3. Wilmarth, M. Grace: Lexicon of Geologic Names of the United States,, USGS Bulletin 896.

THE SAND COLLECTOR

CONDUCTED BY PETER ZODAC
PEEKSKILL, N.Y.

Quartz sand from Gantt Lake, Ala.

"This sand comes from under a one foot thick layer of rock which was full of fossilized sea shells. The place was about 100 feet above Gantt Lake at Clearview (Covington Co.), Alabama. So it must have been laid down a long time ago. It was where a road cut through a hill. Clearview is about half way between Andalusia, on the south, and Brantley, on the north, on U.S. 29. Have plenty more if anyone would like some."—letter dated Nov. 16, 1954, from Harold P. Post, Chesterfield, N.H., who collected the sample.

The sample is a medium grained gray sand consisting chiefly of colorless quartz with some green hornblende and silvery muscovite.

Five sands from Salem, Ark.

Glen E. Kiser, Douglass, Kans., has sent us 5 sands from Salem, Fulton Co., Ark. The first 4 sands come from a roadside ditch 4 miles west of Salem on Hyw. 62, where Mr. Kiser found a number of beautiful colored sands. One sample was a medium grained red sand—all red stained quartz and very nice. The 2nd sample was a medium grained tan sand—all pale brownish quartz. The 3rd sample was a medium grained pinkish sand—all pinkish quartz. The 4th sample wes a medium grained brown sand—chiefly brownish quartz but some colorless quartz also present. The 5th sample comes from the roadside, Hwy 62, 2 miles west of Salem. This is a medium grained brownish sand consisting chiefly of quartz (brownish, whitish, colorless, smoky) with some dark brown limonite and a tiny amount of black magnetite.

Volcanic ash from Mt. Lassen, Calif.

This is a gray sand consisting entirely of volcanic ash varying from fine to coarse grained. It was donated by George L. Goodrich, Box 124, Mt. Shasta, Calif.

"In envelope you will find a sample from the crater of Mt. Lassen (Shasta Co.), Calif., which is the last place in the world I would expect to find sand. The stuff comes from about 50 feet from the top or 10,453 minus 50 feet. Since all my sacks were filled with scoria, obsidian," and stuff like that, I filled my jacket pocket which will account for any strands of tobacco you may find (we found some)".—on label accompanying the sand.

River sand from White Springs, Fla.

Suwannee River, famous in song and story, furnishes a sand sample that was sent us by Glen E. Kiser, Douglass, Kans. The sample comes from White Springs, on the north shore of the river, in Hamilton Co., Fla. The sand is gray in color and consists entirely of fine grained colorless quartz.

"Suwannee River near Stephen Foster Memorial, White Springs, Fla."—on label.

River sand from Boonesboro, Ky.

Boonesboro, in Madison Co., Ky., is on the west shore of the Kentucky River from which our sand sample comes. The sample is a fine grained brownish sand consisting chiefly of quartz (brownish, smoky) with smaller amount of brown limonite, silvery mucovite and a very small

amount of black magnetite. The sand was sent in by Charles Johnson, 307 W. 4th St., Frankfort, Ky.

"Boonesboro is located at Lock 10, Kentucky River, in Madison Co., Ky. A level bottom on the west side of the river, a salt-sulphur spring is in a grove of virgin sycamores (this spring was a buffalo lick). Boonesboro started out as a fort on April 1, 1775 (60 yards from the river) that was built by Daniel Boone. The 3rd school in Kentucky was here among the pupils were the children of Daniel Boone."—letter dated April 2, 1955, from Mr. Johnson

Beach sand from Lincolnville, Me.

Lincolnville, Waldo Co., Me., is on Penobscot Bay. From the beach at Lincolnville we have a sand sample that was collected for us last September by Mrs. Olive E. Looney of Lincolnville. Here is her letter, dated Sept. 16, 1954:

"The hurricane Carol did strike on August 31st and I collected the sand on the day after, September 1st. Hurricane Edna struck on September 11th in the evening. I collected sand on the beach the following day, from the same dark streaks but close to a culvert that carries drainage from the mountain. The water was still flowing quite rapidly, although shallow and I could see garnets tumbling along with it but didn't have anything fine enough to catch them in, so I scooped up what I could, with my little shovel. It is lighter in color than the Carol sand but strongly magnetic. It suggested to me that the garnets maybe washing down from the mountain."

The sample is a dark reddish gray, fine grained sand. It consists chiefly of pinkish gemmy garnet, black lustrous magnetite, and colorless to smoky quartz. Minor amounts of green epidote and silvery muscovite also present. It was collected the morning after Hurricane Edna had struck.

Chlorite sand from Norfolk Co., Mass.

"Enclosed you will find a sample of sand I found at the intersection of Mass. State highways 9 and 128. The State is relocating 128 and they had to cut through a hill near a contact zone. I found green quartz, asbestos and earthy masses of green material of which the sand is composed which was at the bottom of the cliff. I don't dare guess as to what it may be."—letter dated April 26, 1955, from Steve Norton, 155 Winter St., Westwood, Mass.

The sample, which comes from Norfolk Co., is a dark green, fine grained sand consisting entirely of tiny green flakes of chlorite.

Cave sand from Franklin, N. J.

From Franklin, Sussex Co., N. J., we have a sand sample that comes from a new cave and was collected for us by Lawrence Chapman, 41 Church St., Franklin, N.J. The sample is a grey, medium grained sand consisting chiefly of quartz (colorless, smoky, brownish) with minor amounts of gray calcite, green epidote, black magnetite and brownish phlogopite.

"Sand comes from Paulison's Sink Cave, Sink No. 3, Franklin, N.J. Cave opened May 10, 1955."—on label.

Feldspar sand from Tabor, S.D.

This is a very coarse, pinkish sand consisting chiefly of pink feldspar (some white, also gray) and a small amount of smoky quartz. Collected for us by Mrs. Ed P. Olson, Beresford, S.D.

"From a gravel pit in Tabor, Bon Homme Co., S.D."—on label

Oolitic sand from Crystal Beach, Utah

There's a crystal beach in Utah and it is located on Great Salt Lake in Salt Lake County. From the beach we have a sand sample that was collected for us by Mr. and Mrs. Geo. C. Barclay, Box 433, Newport News, Va., some few months ago while on a long western trip.

Th sand is gray and medium grained consisting entirely of calcite concretions (all nicely rounded and gray to white in color). A map showing the location of the beach was also sent us.

River sand from Parkersburg, W. Va.

Parkersburg, Wood Co., W. Va., is on the Ohio River and from the river we have a sand sample that was sent us by T. W. James, The sample is a very coarse, dark brown sand consisting of quartz (white, smoky, reddish) with brownish limonite, gray chert, red garnet, and a

little black magnetite plus gray sandstone and gray quartzite.

Hematite sand from Red Buttes, Wyo.

Red Buttes, in Weston Co., Wyo., is 9 miles N/W from Four Corners. From the locality we have a sand sample that was collected for us by Mr. and Mrs. Geo. C. Barclay, Box 433, Newport News, Va. The sample is a medium grained red sand consisting chiefly of red hematite (earthy and coating quartz grains) and quartz (smoky, gray chalcedony).

River sand from Andorra

Andorra is one of the world's smallest republics. The little country is situated between Spain and France. From the Valira River, and 200 meters (about 600 feet) south of the little town of Encamp, we have a sand sample that was collected for us by Juan Montal, Plaza Sagrado Corazon 1, Villafranca del Panades, Spain.

The sample is a very coarse, dark gray sand consisting of smoky quartz (some very dark), dark gray limestone, dark gray mica schist, black biotite, and a tiny amount of dull black magnetite.

"Sand from Valira River, 200 meters after Encamp, Left margin. Collected Aug. 15, 1954."—on label.

Garnet sand from Lake Waskesiu, Sask, Canada

"I just received a sample of garnet sand from a friend of mine. It is from Lake Waskesiu (Sask), which is about 68 miles north of Prince Albert and 328 miles northwest of Yorkton. The sand consists chiefly of almandite garnet, and magnetite; there is also some colorless quartz. I hope it will please you."—letter dated April 10, 1955, from Jack M. Park, 148-2nd Ave., Yorkton, Sask., Canada.

The sample is a fine grained reddish-pink sand consisting chiefly of gemmy pink garnet, with some black lustrous magnetite and a little colorless quartz.

Quartz sand from Porto Colombia, Colombia

"Under separate cover I am mailing a sample of sand which I collected near Porto Colombia, Colombia."—letter dated Feb. 10, 1955, from James M. DuPont, Myersville Rd., Chatham, N. J.

Porto Colombia is on the Caribbean Sea and is the port for Barranquilla. Tne sample sent us is a black, fine grained sand consisting almost entirely of black, lustrous magnetite, with minor amounts of black, lustrous ilmenite, green epidote, pinkish garnet, and colorless quartz.

Beach sand from Hornbaek, Denmark

Hornbaek is on the N/E coast of Zeeland, the largest island in Denmark. From the beach in Hornbaek we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland. The sample is a fine grained, grayish-brown sand consisting chiefly of quartz (chiefly colorless, some brownish, reddish, and smoky) and feldspar (brownish and colorless) and a tiny amount of black magnetite.

"This sand is from the nearest point to Sweden. Collected by my friend, Lawrence Hervey."—on label.

Shell Sand from Fanning Island

From the N/W. shore of Fanning Island we have a sand sample that was sent us by Miss Winifred H. Arnold, 2020 Magnolia Ave., Long Beach 6, Calif. The sample is a medium grained whitish sand consisting entirely of sea shells (white, brown, pink) with a few grains of black magnetite. Fl. pale lemon yellow under long wave.

Miss Arnold sent us also the following item which is taken from "American Polynesia and the Hawaiian Chain", by Edwin H. Bryan, Jr.

"Fanning Island (in the Pacific) lies 228 nautical miles north of the equator.

"The island is a roughly oval coral atoll, 9.5 nautical miles northwest and southeast, by 6 miles wide. The enclosed lagoon has an area of 42.6 sq. miles. The deepest water in the lagoon is about 50 feet, only three-quarters of a sq. mile exceeds 30 feet in depth, and most of it is very shallow.

"There are three very narrow breaks in the 31 miles of land rim. At two of these the reef admits passage only for a canoe in good weather. Vessels also may anchor at Whaler Anchorage, on the northwest side. Here is located the pier of the cable station, at or near which landing is generally made.

"The rim of the island is very low, made up of a beach crest, about 10 or 12 feet high, within which much of the land is only 2 to 3 feet above sea level. The land is thickly covered with coconut palms and the remains of native bush. These reach a height of 60 to 90 feet, making the island visible from the deck of a vessel at about 15 miles. The soil is fertile and breadfruit, bananas, figs, pineapples, taro, and arrowroot grow readily. Soil has been imported from Honolulu for vegetable gardens.

"Fanning was discovered by Captain Edmund Fanning, in the American ship Betsy, at 3:00 a.m. June 1, 1798. Fanning was formally annexed to Great Britain by Captain William Wiseman, of H. M. S. Caroline, March 15, 1880. A cable relay station was established in 1902. The island is administered from Ocean Island, 1880 miles away, but there is a resident agent immediately in charge. New Zealand stamps have been used for postage."

Garnet sand from Alajarvi, Finland.

From Alajarvi, Inari, Finland, we have a garnet sand that was sent us by Prof. Aarne Laitakari, Geological Survey, Boulevard 29, Helsinki, Finland.

The sample is a medium grained dark red sand consisting chiefly of pink to reddish garnet, with black hornblende, green epidote and a small amount of black magnetite.

Alajarvi is a lake in northern Finland.

Beach sand from Apia, Samoa

Upolu, one of the Samoan Island in the South Pacific, is about 43 miles long and 10 miles wide. It is one of the Western Samoa group and is administered by New Zealand. Apia, the chief town, chief port and administrative center, is situated on the north shore of Upolu Island. It is prettily situated on a wide sweeping bay, and has a large mixed population of about 10,000. From the beach at Apia, we have a sand sample that was collected for us by Wilfred C. Eyles, Yermo, Clif., while returning from a trip to Australia.

The sample is a medium grained, dark gray sand consisting of blackish magnetite, greenish gemmy olivine, and sea shells (chiefly white, some brownish, reddish).

Shell sand from Crail, Scotland

From a bay north of harbor of Crail. Fife, Scotland, we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland.

The sample is a coarse, brownish sand. It consists chiefly of sea shells (chiefly brown but white, bluish, reddish also present. Some of the shells show a play of colors). The sand also contains black magnetite, smoky quartz, reddish quartz, and black slate. One tiny shell fluoresces a fiery red under the long wave. "From the quaint, picturesque fishing village of Crail in the East Neck of Fife.

"Like all the fishing villages of Fife, few boats now go out, but the village is now the haunt of artists and a holiday resort in summer'—on label.

Beach sand from Umhlanga Rocks, So. Africa

Umhlanga Rocks, on the Indian Ocean, is a seaside resort in Natal, South Africa, 12 miles north of Durban. From the beach we have a sand sample that was collected for us by F. C. M. Bawden, P.O. Box 1167, and Mrs. I. N. Gush, P.O. Box 1128, both of Johannesburg, South Africa.

The sample is a medium grained, brown sand. It consists of sea shells (brown, white, pink), colorles quartz, pink to red gemmy garnet, black lustrous magnetite, and green epidote.

Magnetite sand from Papeete, Tahiti Island.

Tahiti, one of the Society Islands in the South Pacific, is 30 miles long and 18 miles wide at its widest point. Papeete, the chief town of Tahiti, is on the northern coast of the island. The island belongs to France.

From the beach at Papeete, we have a sand sample that was collected for us by Wilfred C. Eyles, Yermo, Calif., while returning this year from a trip to Australia.

The sample is a fine grained, dark brownish sand consisting chiefly of magnetite (black, but weathered to a dark brown) with minor amounts of greenish

olivine, sea shells (white, dark brownish), and dark brownish to blackish basalt.

Shell sand from Tonga Islands.

The Tonga Islands (in the South Pacific) consist of about 200 small islands, most of which are uninhabited, with an area of 250 sq. miles. Nukualofa, the capital and seat of government of Tonga Islands, is situated on the northern side of a large, flat, coral island of Tongatabu, or "Sacred Tonga."

From the beach at Nukualofa, we have a sand sample that was collected by us by Wilfred C. Eyles, Yermo, Calif., while returning this year from a trip to Australia.

The sample is a coarse, brownish sand---all brownish sea shells plus some brownish coral.

Beach sand from Definge, Turkey

Walter McNamara, 7 Harmony St., Danbury, Conn., sent us a sample of beach sand from Definge, Turkey, which he had collected for us while on a recent trip to that area (McNamara is a merchant seaman). We had trouble in locating Definge, so petitioned Mr. McNamara for help and here is his answer, dated April 27, 1955:

"About Definge, nobody that I've ever talked to has seen it on a map, and I doubt if it is. It's just a speck of a village nestling away among a lot of chickens and goats with here and there a few Turks wandering about.

"Look at your map of Turkey, Asiatic side, and seek ye the port city of Izmid (or Ismid) on an inlet at the easternmost extremity of the Sea of Marmara. It's not so far southeast of Istanbul. (Not Izmir, which is another city altogether and much farther away, on the Aegean). Definge is 5 miles west of Izmid, on the coast, and within sight of the latter; within walking distance, too, as a matter of fact because I walked it."

Definge, then, is a tiny village on the Gulf of Izmid in Asiatic Turkey.

The sample received is a medium grained dark red sand consisting entirely of quartz (reddish, some smoky and brownish).

More about the fake "red obsidian"

Editor R & M:

Reference letter in the March-April 1955 ROCKS AND MINERALS from Mr. Hollis J. Gordon, p. 164.

I have some of the "red obsidian". It was given to me by a friend who like Mr. Gordon, doesn't think it is obsidian, and neither do I. My friend received it under the impression that it was slag from a silver smelter, and neither of us believes this either. I have seen red obsidian, but only as dark red streaks in the customary and typical black obsidian, while the material in question is predominatly red but with swirls of orange and yellow. It is really beautiful stuff but I believe it is all - as Mr. Gordon indicated - waste from a glass factory.

Years ago there was a famous glass factory at Sandwich, Mass., and a story is told of how, at the close of a day's operation, a batch of odds and ends of various colors would be put together in a retort or crucible, given a swirl or two—enough to partially mix the various colors but not blend them into one color—and this mixture was run into whatever molds were available and the resulting ware sold as "Sandwich Slag Ware". The plates, cups, bowls, etc. thus produced brought good prices and came to be much sought-after in the antique shops; it is truly beautiful stuff. I've never seen any that was red to any appreciable degree, but this may not prove anything since red may not have been a much-used Sandwich glass color, and I've never been a diligent seeker of antique glassware or by-products thereof.

At any rate, on my first view of this controversial "red obsidian" my first thought was "glass factory waste".

Dorr Alfredo
322 Linda Vista
Las Cruces, N. Mex.

May 9, 1955

Don't like to miss meals!

Editor R&M:

Enclosed is a check for our subscription to R&M for the coming year. We don't like to miss meals at our house and missing R&M would be in the same classification.

Don Alfredo
Wayland Road, R.D. 1
Collegeville, Pa.

June 24, 1955

ARANDISITE

(*Continued from page 342*)

big piles of empty beer bottles, mute proof that is thirsty work digging Arandisite in the Namib.

BIBLIOGRAPHY:

Transactions of the Geological Society of South Africa.
Volume XXXII, 1929. 2 Papers.
Geological Survey Information Pamphlet Number 3.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

MINERALOGCAL SOCIETY OF PENNSYLVANIA

May Field Trip and 1955 Annual Meeting.

On Sunday May 8th the M.S.P. visited the SHOWALTER Limestone Quarry, at Blue Ball, Lancaster County, Pa., at the invitation of our much esteemed, fellow member Mr. J. C. Showalter. As has been the custom of our Society, for the past several years, the annual meeting was held in the majestic amfitheater of the impressive quarry. Our retiring president Dr. Arthur Hopkins conducted the meetting in his usual dignified and able manner. Committee reports were heard. The annual election resulted in the selection of Mr. Harold Evans as President, the re-election of Mrs. Gene Belz as Vice President, Recording Secretary Mrs. Edna Hunt, Treasurer Mr. Walter Bancroft, corresponding secretary Mrs. Helen M. Bauhof and staff. Mr. and Mrs. Gerry and Will Shulman, have relinquished the Committee on Publicity, on which they have done a very meritorious job in the past.

Our good host Mr. Showalter, as has been his practice, provided unsurpassed local ice cream, rich milk, cookies, cigars etc. for the "crowd", to-day numbering some 200 persons, no small undertaking. Needless, to say, it was much enjoyed and most gratefully accepted.

The eager, industrious members, were soon at work pounding rocks in the search for "Blue Ball" Dolomite crystals which probably cannot be matched from any other quarry. Mr. Gene Orner, of Cornwall brought along his prize find of Dolomite, made several years ago. A slab about 8 x 10 inches of perfect unblemished crystals, lilac pink in color, which every one agrees is most likely the choicest

Photo by Harold Evans

Annual meeting of the MSP in Showalter's Quarry, Blue Ball, Penn. May 8, 1955. Note Mr. Showalter's refreshment truck.

Photo by Harold Evans

Cedar Hill Quarry, scene of MSP field trip on April 17, 1955

specimen ever found here. Flat pyrites, fresh and gleaming, made a big hit, particularly with the younger members, one of whom, Steve Ritter (age 9) had the first strike with the finding of a large perfect specimen, that started the race.

The showery, early morning, changed into a perfect spring day which added to the happiness of those present all of whom seemed to agree that it was another very enjoyable occasion for our Society.

April 1955 Excursion.

On Sunday the 17th the M.S.P. journied to Cedar Hill Serpentine Quarry in southern Lancaster County, close to the Mason and Dixon Line, one mile north of Rock Springs, Maryland. The location is intermediate between Wood's Chrome Mine and Line Pits, both long famous for their mineral species. Our hosts D. M. Stoltzfus & Sons, Inc., owners, made the visit smooth and pleasant for the 180 persons present. Serpentine quarries can be very interesting places to mineral collectors and in the past Cedar Hill, formerly known as Geiger's Quarry, produced some outstanding specimens of Brucite, Williamsite, Picrolite, Deweylite and other members of this group of minerals.

Most of the crowd seemed quite satisfied with their finds of these species as well as Chromite, Calcite, Zaratite, Kammererite etc. The immense piles of prepared stone were quite promising and productive of good material-specimens. However, many large masses in the quarry were reduced to rubble under the hammers of the enthusiasts. The weather was generally threatening, with several light showers which no one seemed to mind too much. The social atmosphere was, as usual, very pleasing and agreeable. Every one appeared grateful and happy for the opportunity, to get to this extensive quarry.

CORRECTION - In "Society Notes" page 54, Rocks and Minerals for January - February 1955. It was stated that the Academy of Natural Sciences had republished the MINERALOGY of PENNSYLVANIA, by Samuel G. Gordon. This statement should read "Republished by the MINERALOGICAL SOCIETY OF PENNSYLVANIA *** BY permission of the Academy of Natural Sciences of Philadelphia."

MINERALOGICAL SOCIETY OF PENNSYLVANIA
June Field Trip

The June 19th, Field Trip, of the M.S.P. was to the old Friedensville Zinc Mine, Lehigh County, Pa., with an attendance of 178 members and friends.

The mine consists of a chasm several hundred feet deep. The abrupt drop into the awesome depth, is nerve chilling. When aban-

doned, the open cut and shafts had gone down about three hundred feet. Above the far end is a massive stone structure, now roofless, resembling the ruins of an old castle and which housed, at one time a giant Corliss pump, then the largest in the world, considered of such importance that it was dedicated by Pres. Grant. Up to a short time ago the mine was almost filled with water but is now completely drained. Present operation of the property of the New Jersey Zinc Company is proceeding on a new shaft over half mile from the old mine.

The extensive dumps were the scene of much activity by our group and many pieces of stone and ore were carried off for the many attractive microscopic crystals on their surfaces. Here, member Mr. Floyd Faux, due to his familiarity with this mine, its history, its minerals and frequent visits, willingly identified the various finds. Some of the finds were: greenockite, aragonite, smithsonite, calamine, sauconite, hydrozincite and pyrolusite with many examples of the gray, zinc bearing sphalerite. After a very pleasant time and interesting activity the crowd commenced to disperse, to the accompaniment of very light showers which had held off their activity very commendably for the benefit of the excursion.

Harry W. Trudell
Chairman of Publicity
1309 Highland Ave.
Abington, Pa.

New York Mineralogical Club, Inc.

Minutes of the Annual Meeting held on May 18, 1955, in Philosophy Hall Columbia University, New York City, N. Y.

Approximately 75 members and visitors were present.

Dr. Stenbuck, retiring president presided and called for order at 8:05 P.M.

A unanimous vote of thanks was given to Mr. Hayden for the revised membership list mailed to each member in good standing.

Mr. Cosminsky, in town on business, was a welcome visitor. He announced to the club that the details on the Eastern Federation Show would be in the hands of the secretary soon.

Dr. Stenbuck requested the members to get in touch with our secretary for these details if any are interested.

Recess was held at 8:17 immediately followed by the program. Dr. Stenbuck introduced the speaker, Mr. Neal Yedlin, as the largest man in the club who would speak on the smallest subject: Micromounts. Mr. Yedlin in his inimitable manner gave us the real inside of his hobby, micromounting; from definition to technical discussion of equipment and materials used and the preparation of specimens. On the screen were shown color slides of his pet specimens and Mr. Cosminsky was

Photo by Harold Evans
Friedensville Zinc Mine, Friedensville, Penn., scene of MSP field trip on June 19, 1955

invited by the speaker to illustrate his method of preparing mounts, ingenious in their simplicity. After a sprightly question and answer period the speaker received a rising vote of thanks for a most enjoyable lecture.

Dr. Stenbuck asked Mr. Cosminsky to come to the rostrum and turn over the famous gavel to the incoming president, Mr. Curt Segeler. Mr. Segeler briefly addressed the members and called for adjournment at 9:48 P.M.

The social followed. Tasty tid-bits were available, having been prepared under the a[illegible] of Dr. Holmes and these were soon being washed down with beer or tea as taste dictated. This most enjoyable evening closed about 11:00 P.M.

Victor Pribil Secretary
47-18 37th Street
Long Island City 1, New York
Tel. RA 8-8178

Westchester Mineral & Gem Society

The Westchester Mineral and Gem Society held its last official meeting of the season June 7th, 1955. Mr. David Seaman of the American Museum of Natural History spoke on zeolites, minerals of Paterson, New Jersey. This was followed by a social.

Field trips are being planned for the summer months, by Bob Kelley, the Field Trip Chairman. The organization is in the process of being incorporated.

There will be meetings during the summer of officers to plan the programs for next year and to consider a slate of election of officers.

Peggy Nielsen
Secretary-treasurer
8 Mohican Pk.
Dobbs Ferry, N.Y.

Rockland County Mineral and Gem Society Spring Valley, New York

The Rockland County Mineral & Gem Society enjoyed a very rewarding field trip to the New Street Quarry in Paterson, N.J. After removing a boulder weighing about ten tons a good cavity of pectolite was found, this mineral is very hard to find on the surface of a trap rock quarry, therefore it envolves a lot of hard work and risk to secure good specimens. Some Prehnite was also discovered lining the walls and ceiling of small caves or cavities, this was also hard work and took a small person to wiggle into the cave to dig it free.

Attending this field trip which was led by Mr. Obert of Paterson were Mrs. Obert, Mr. and Mrs. J. Weitmann, Pearl River; Mr. and Mrs. Gilbert Pugsley and Robert of New City; Mr. and Mrs. Doctorow and Gilbert of Spring Valley; Mr. and Mrs. Rode and their granddaughter of New City; Mrs. J. Wexler & Steven and his friends of Nanuet; Mrs. B. Jordan of Pearl River; Mr. Lester Peper of Spring Valley; Mr. Paul Bock of West Nyack, and Mr. and Mrs. Louis G. Collyer of West Nyack.

Some of the members returned to the home of Mr. and Mrs. Obert in Paterson, N.J. where supper was served.

Mrs. Marguerite R. Collyer
Corr. Sec.
West Nyack, N.Y.

North Jersey Mineralogical Society

"Lithium, the Miracle Metal" was the way Curt Segeler described the subject of his talk before the North Jersey Mineralogical Society at its May meeting held in Paterson Museum.

Mr. Segeler is a practicing mineralogist in New York and is a frequent guest speaker before the local mineral society.

From medicine through metallurgy and axle grease to the hydrogen bomb runs the list of uses to which lithium has been adapted.

Mr. Segeler said the element lithium was discovered in 1818 by a Swedish chemist in the mineral petalite. It is an alkali metal and is No. 3 in the table of atomic weights. Only hydrogen and helium are lighter in weight.

Its first use was in medicine. Lithia water was formerly prescribed as an alkaline corrective in certain cases.

A useful property of lithium is its easy reaction with several chemicals. Mr. Segeler said this fact was known in Germany and the metal was used to remove impurities from brass, bronze and other alloys for years before it was known in this country. The Germans also used it in railroad bearings with success, but not until after World War II was this knowledge brought to the United States.

Lithium greases really brought about the enormous demand for the metal which now exists, he said. He explained that when the U.S. Army tried to operate motor vehicles in the Arctic, ordinary greases froze and the trucks could not be moved. When lithium grease was tried it was found to be impervious to cold weather, and everything on wheels moved as easily as in a warm climate. The only two firms doing lithium processing were swamped and could not fill the demand that arose.

Then the idea of fusing light elements to make a destructive bomb—the reverse of the atomic fission idea—was worked out, and hydrogen and lithium were selected. Again the demand for lithium increased.

Lithium is to be found in a dozen minerals, most of which are well known to mineral collectors who visit pegmatite deposits. The amount of lithium to be derived from any of them, however, is relatively very small, so that lithium mining is expensive. A large mass of material must be handled to get a small amount of the metal.

At present, one of the chief sources is a pale pink petalite which comes from Africa. Other lithium-bearing minerals are spodumene, eucryptite, lepidolite, cookeite, zinnwaldite, triphylite, lithiophilite, fremontite, sicklerite, cryo-

phyllite and finally, cryolithionite which comes from Greenland.

Two rare varieties of spodumene are used as gems: a green type called hiddenite and found chiefly in North Carolina; and a violet kind known as kunzite, chiefly from California and Madagascar.

Mr. Segeler displayed specimens of most of the lithium-bearing minerals from his own collection. Harold Gabriels also showed lithium minerals, and William Pfeifer had shimmering pink cabochons cut from petalite.

The 15-minute mineral study was led by Warren Duncan whose talk was about coal. He had specimens to show its development from peat through lignite and bituminous to anthracite; also other forms such as cannel coal and jet. He had a chart showing some of the thousands of coal and tar derivatives, and dramatized the uses of many of them.

Wilfred Welsh will be the leader at the June meeting.

Four new members were admitted to the society.

Well crystallized azurite was shown in the display case by Harold Gabriels, with malachite, dioptase and other copper minerals. Sam Brown had a cabochon and a polished slab containing copper from Bridgewater, N.J.

Marian B. Casperson
Publicity Chairman
9-11 Hamilton St.
Paterson 1, N.J.

The Mineral Section of the Rochester Academy of Science

The Mineral Section of the Rochester Academy of Science has just completed a very successful season of eight monthly meetings. An average of 40 members and guests present per meeting indicates the degree of interest and the caliber of our speakers and programs.

Several members of our group had recently been fortunate enough to visit areas of great geological and mineralogical interest. Consequently, at various times, we found ourselves over the Yukon in a helicopter, traveling the Alcan highway, absorbing the grandeur of many of our western National Parks, and watching surf and wind effects along the California coast. Colored slides predominated but movies and stereoscopic series provided in several cases a chance for further enjoyment and photographic method comparisons. We also recaptured a bit of the enjoyment of last summer's field trips through photographic records made by several members. An auction and a Quix-the-Experts panel allowed the audience to participate in the programs, whereas, a lecture on pseudomorphs and panel discussion on Mineral Collecting and Field Trips were enjoyed largely for their practical information.

Our meetings will be convened on the first Thursday of each month, starting with October, at the Rochester Museum of Arts and Sciences, with visitors always welcome. New officers have been installed and chairmen selected for the coming year. The program for the winter season is rapidly taking shape and will include as much of interest to our Junior members as to our more advanced members.

In the meantime the Mineral Section has scheduled several summer collecting trips. The three long weekends will provide excellent opportunities for more extensive field trips than is usually possible for a group.

Donald A. Armistead
Secretary
101 Brookfield Rd.
Rochester 20, N. Y.

The following officers were elected at the May 5, 1955 meeting of the Mineral Section of the Rochester Academy of Science:

Chairman: Donald A. Armistead
101 Brookfield Road
Rochester 10, N. Y.
V. Chairman: H. Lou Gibson
Secretary: Mrs. A. E. Milbredt
25 Amerige Park
Rochester 1, N.Y.
Treasurer: Robert M. Eaton
Curator: John E. Hartfelder

Meetings, held on the first Thursday of each month, will be resumed in October.

Gem and Mineral Society of the Virginia Peninsula

Gem and Mineral Society of the Virginia Peninsula. This is a newly formed club with approximately 40 members. All readers residing in the area are urged to join it. If interested, contact the Asst. Corresponding Secretary, Mary Ann Kelley, 1225 - 22nd St., Newport News, Va.

Mid-West

Chicago Rocks and Mineral Society.

On the evening of May 7th, the Chicago Rocks and Minerals Society meeting at Greenbriar Field House, was entertained by Mr. Haskell Hackett, Chief of Police of Galena, Illinois.

His knowledge of the old Galena of river boats and great mansions made for an evening of pleasant recalling of old tales and showing colored slides of the old and the present Galena. A field trip was planned to the mines of this area.

Minnesota Mineral Club

The Minnesota Mineral Club had an attendance of 12,000 at their Annual Exhibit which was held at the University of Minnesota—Coffman Memorial Union. Guest exhibitor. Grace Bahovec, Barnof, Alaska, had a very interesting display which included jade, petrified sequoia, and unusual jewelry creations.

Field trips planned for the summer on the second week-end of every month through October include visits to the Mesabi Range, Royalton for staurolites, the Cuyuna Range, the North Shore, and nearby gravel pits for Lake Superior agates.

The club bulletin—Rock Rustler's News - is now edited by four women. Watch for household hints, when the men fail to turn in their copy.

Mrs. David Glaser
2400 Bourne Ave.
St. Paul 8, Minn.

South West

Mineralogical Society of Arizona

At the annual election of officers of the Mineralogical Society of Arizona held May 6, Mrs. Katherine Trapnell was elected president for the coming year and E. R. (Jim) Blakley elected vice president. New directors elected were C. F. Burr, Harry V. Hill, Joseph W. Harris and Susan B. Cummings. Mrs. Edna Barritt will continue on as Secy-Treasurer, Mary Ann Probert, Historian, and Ida M. Smith, Cor. Secy.

Susan Cummings gave a talk on zinc phosphate. The balance of the evening was devoted to swapping rocks.

At the May 20 meeting, Susan Cummings and W. W. Wells presented programs of kodachrome pictures of Arizona.

Announcements were made of the annual jamboree to be held June 5 at South Mountain Park, and of informal monthly meetings to be held during the summer at various homes. Regular meetings the 1st and 3rd Fridays of the month at the Mineral Building will be resumed in October.

Ida Smith, Cor. Secy.
2010 W. Jefferson
Phoenix, Ariz.

West

Slover Gem and Mineral Club (Colton, Calif.)

New officers: Howard Meadows, pres. Martha Woodring, Secretary, and M. B. Willoughby Treasurer.

The club celebrated its third anniversary June 14 with a fish fry at Devils Canyon Picnic ground in San Bernardino. The club has had recent field trips to Tripp Flats in the San Jacinto Mts. for tourmalines; to the Lavic-Cady Mt. area for jasper; to the Turtle Mts.; to Wiley Well; and the July trip is planned for Big Bear Lake after garnets.

The club plans to enter an exhibition at the County fair in Victorville the last part of August.

They also attended the Glendale Gem Show, as the field trip for May.

Rocks have been exchanged with their 'corresponding member" Leon T. J. Van Rensburg of Transvaal, South Africa; additions to the club collection being blue asbestos, a rich gold bearing quartz ore, and agates.

Aileen McKinney, Publicity ch.
1080 Rancho Ave.
Colton, Calif.

Los Angles Mineralogical Society

The Los Angeles Mineralogical Society enjoyed an instructive talk by Dr. Foster Hewett, Staff Geologist of the United State Geological Survey. His subject was "The Search for Uranium and Thorium in Southern California." finding radioactive minerals where no geologist would have looked, and praised rockhounds for their contributions to science.

Uranium and Thorium are being found under associations in which they were never found before. Between 5 and 10 new uranium minerals are being found a year. However, most people are finding thorium minerals rather than uranium. It is important to ascertain which is causing the radiation, uranium or thorium.

Dr. Hewett's suggestions to the amateur prospector were: Read books and pamphlets on uranium and thorium; become acquainted with 10 or 15 common and secondary minerals; visit places where they have been found; look in veins in old mining camps. Several big finds have been in veins.

One of our junior members, Gordon Davis, Jr. won an award at the Southern California Science Fair, held at the Los Angeles County Museum, on his exhibit of radioactive minerals.

Evalyn Cherry, Publicity L.A.M.S.
4113 Garthwaite Ave.
Los Angeles 8, Cal.

REPRINTS AVAILABLE

There have been so many requests for reprints lately that the following bit of information may be of value. Reprints can be supplied and at the following rates, approximately:

100 copies	.....	2 pages	$3.75
100	"	4 "	7.25
100	"	6 "	10.25
100	"	8 "	12.75
100	"	10 "	15.00

All reprints must be ordered in advance, before the articles makes their appearance in print.

Publications Recently Received

Wahlstrom—Petrographic Mineralogy

By Ernest E. Wahlstrom, Department of Geology, University of Colorado, Boulder, Colo. 1955, 408 pp. 12 figs. 5¾ x 8¾, Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. $7.75

Here is the answer to a long-felt need of the student or professional investigator using polarizing microscope techniques in the petrographic laboratory. There have been many books and papers that explain the theory of the instruments of petrographic research. There are a number of references which cover the classification and properties of rocks and minerals. But, until now, there has been a gap between these two aspects of research which has hindered the application of theory.

In Petrographic Mineralogy you will find a single work that provides all the data necessary for the correct identification and classification of minerals and rocks as examined under the polarizing microscope or by other petrographic methods. It covers the techniques involved, provides ample descriptions of minerals as seen under the microscope, offers determinative tables for use with the petrographic microscope, and condensed summeries of rock classifications.

All this material has been arranged for maximum accessibility in reference or study. The book is lavishly illustrated with photographs and diagrams and is fully equipped with reference material for those seeking specialist information.

Emmons - Thiel - Stauffer - Allison Geology, Principles and Processes.

By William H. Emmons, Late Professor of Geology, University of Minnesota; George A Thiel, Professor of Geology, University of Minnesota; Clinton R. Stauffer, Professor Emeritus of Geology. University of Minnesota, Research Associate, California Institute of Technology; Ira S. Allison, Professor of Geology, Oregon State College 1955, 638 pp., 519 figs., 6 x 9½. Published by McGraw-Hill Book Co., Inc. 330 W. 42nd St., New York 36, N.Y. (New 4th Edition) $6.50

Here is an analysis of the place of the earth in the universe, the materials of the earth, the processes which shape its external features, its movments and their results, and its mineral resources. The writing is simple, the sequence logical. Mathematical and chemical and chemical details, as well as unnecessary technical terms, are avoided. Many new drawings, photographs, and charts illustrate the expository sections of the book, and chapters are followed by references to source material and supplementary reading.

Topics of the previous editions are reorganized, revised, and augmented by new information based on recent research. New material includes:

—a more complete presentation of chemical weathering

—a new chapter on the work of the wind

—an expansion of erosional processes in desert environments

—a discussion and classification of soils

—the work of ice, snow and permafrost in the arctic

—a more complete presentation of shoreline erosion and deposition by waves

—new concepts regarding the mobility of rocks in relation to mountain building

—additional data on the origin and geological setting of nonmetallic mineral resources

Kursh - How to get land from Uncle Sam

By Harry Kursh, 1955, 5½ x 8½, 219 pp. illustrated. Published by W. W. Norton & Co., Inc., 101 - 5th Ave., New York, N.Y. $2.95

For nearly two hundred years the United State government has been the largest landowning landlord, yet few Americans realize that it is possible to buy or rent Federally owned land in more than half the states of the Union and in Alaska.

This is the only book that will tell you where to find the land you want and how to go about getting it.

It is the *only* source of *all* the information you need to know; not even the U.S. Government Printing Office can supply the information contained in this book.

Whether it is a weekend retreat or a hunting and fishing cabin, a permanent home or a homestead to farm, land for prospecting for minerals or oil in fact almost any land use you have ever dreamed about—this book will guide you in obtaining it.

How to Get Land from Uncle Sam is complete, thorough, and explicit; it is full of the facts you must know to be successful in obtaining a tract of land under the numerous Federal laws concerning the disposition of the Public Domain.

The book contains detailed maps, lists of regional land offices, and much other material that will help you locate and describe the legal boundries of the public lands.

Harry Kursh has made a thorough study of the subject, interviewing scores of government officials and reading through more than five thousand public-land laws in order to bring to Americans, in the everyday language of this book, the exact steps to be followed in getting

government-owned land. With the help of this book you can get land from Uncle Sam for as little as one cent an acre.

Kirkaldy—General Principles of Geology.

By J. F. Kirkaldy, D.Sc. F.G.S., Reader in Geology, University of London; 1955, 6½ x 9½ 327 pp. 6 pls., 20 figs. Published by Philosophical Library, Inc., 15 E. 40th St., New York 16, N.Y. $6.00

The economic applications of geology include the problems of water supply, and the search for mineral oil, coal, and minerals of all kinds, stone suitable for building purposes or for road making, etc., etc. Of less obvious economic value is the study of the origin of the surface features of the Earth, both large and small, the changing pageant of life during the past 500,000,000 years, the formation of mountain chains, etc. Even studies that seem to be entirely academic often prove later to be of considerable economic value.

The emphasis in this book is on the main principles of the geological science, which are the same whether applied to obviously economic or to purely academic needs. It is intended both as a general introduction to the subject and also as a starting point for specialised work on more limited aspects.

The geologist's main laboratory is out of doors and, as far as possible, the principles have been illustrated by the kind of evidence that anyone with an observant eye can see for himself whilst wandering over the countryside. A knowledge of, and the ability to decipher for oneself, the development of the existing landscape adds greatly to one's appreciation of the Earth.

The author has been a university teacher in geology for more than twenty years and having served in the Meteorological Branch of the Royal Air Force during the war is now head of the Geology Department, Queen Mary College, London.

California Journal of Mines and Geology

San Joaquin County and the use of minerals in an important industry are two subjects featured in a late isnue of the California Journal of Mines and Geology, according to an announcement made by Olaf P. Jenkins, Chief of the Division.

This issue, volume 51, number 1 (January, 1955), consists of two articles: "Mineral use in coated welding electrodes," by Richard M. Stewart, and "Mines and mineral resources of San Joaquin County, California," by William B. Clark, both members of the staff of the Division of Mines.

In "Mineral use in coated welding electrodes," Dr. Stewart discusses the mineral constituents of the coatings used in the manufacture of welding electrodes—among them rutile, limestone, asbestos, brucite, clay, cryolite, diatomite, feldspar, fluorspar, graphite, lepidolite, mica, talc, titanium minerals, and wollastonite. Though the quantities used are small, the importance of the industry is great.

San Joaquin County, subject of the second paper, is an important gas-producing county;—its wells have been in production since 1858. The value of its total mineral production, which includes quantities of gold, silver, platinum, sand and gravel, gas, clay, stone, manganese, limestone, and glass sand, has been nearly 43 million dollars.

The entire journal, bound in gray paper, is priced at $1.00. Besides the 95-page text, illustrated by many photographs and line drawings, the volume includes a geologic map of San Joaquin County showing mines, gas fields, aggregate pits, and clay products plants, folded in a pocket in the back. Copies may be ordered from the Division's San Francisco office, Ferry Building, or may be purchased over the counter at the San Francisco office in Sacramento at State Office Building No. 1; in Redding at the Natural Resources Buildings, and in Los Angeles at the State Building, 217 W. First Street, Room 402B.—all in California.

Filer's 1955 Mineral Catalog

Filer's, 1344 Highway 99, San Bernardino, Calif., have issued their 1955 Mineral Catalog covering crystals, crystal groups, ore minerals and rare minerals. This is a 23 page publication in which the minerals are listed alphabetically.

Uranium Prospecting with the Magic Mineralight.

Ultra-Violet Products, Inc., Dept RM, San Gabriel, Calif., have issued a very interesting publication, "Uranium Prospecting with the magic Mineralight."

This 4-page booklet is full of good ideas on how tn prospect uranium ores, how to test them chemically, how to stake and file a claim, etc.

Ward's Natural Science Bulletin

Ward's Natural Science Establishment, Inc., Box 24, Beechwood Sta., Rochester 9, N.Y., issue a very interesting "Natural Science Bulletin." Their May 1955 issue is an illustrated 12-page publication covering fossils, minerals, etc.

William's Fine Mineral List

Scott J. Williams, P.O. Box 3816, Commerce Sta., Phoenix, Ariz., has issued a 5-page list of fine mineral specimens. This list is unusually heavy in choice foreign material and all attractively priced.

Geodes Industries 1955 Price List

Geode Industries, 411 W. Main St., New London, Iowa, have recently released their 1955 List on geodes and gem materials. This is a 5-page publication and is issued free. Send for your copy.

OHIO PUBLICATION—Geology along Route 40 in Ohio

A. W. Marion, Director, Ohio Department of Natural Resources, announces the publication by the Division of Geological Survey, of a new report, "Geology Along Route 40 in Ohio," by Pauline Smyth: Information Circular No. 16, 65 pp., illus., maps, 1955. Price 25 cents. Copies may be obtained from the Division of Geological Survey, Room 11A, Orton Hall, Ohio State University, Columbus 10, Ohio.

Mr. John H. Melvin, Chief of the Division of Geological Survey, has planned this book as the first of several publications describing the geologic features along major highways in Ohio. It is profusely illustrated with photographs, drawings, and maps. Each major section is introduced by a general description of its geology. A detailed road log with mileage between points of interest is accompanied by maps and pictures on facing pages. Index maps make it easy for the traveler to start at any place on the route. Points of historic interest and picnic and recreational areas are indicated. This publication is written for the amateur who is interested in geology and who wants to know more about the rocks he sees along our highways.

IT COULD HAPPEN TO YOU!

A pitch in the right direction

In April, 1928, William P. "Punch" Jones, a 12 years old lad, while pitching horseshoes with his father, Grover C. Jones, made a pitch which kicked up a bright, glassy object. The object was picked up by the lad, who not knowing what it was but fascinated with its beauty, treasured it as a curio. On May 5, 1943, he sent it to Prof. Roy J. Holden, for identification. Prof. Holden pronounced it a diamond and in honor of the discoverer it was named the "Punch" Jones diamond. Its weight of 34.46 metric carats makes it the largest diamond ever found in eastern United States and one of the largest ever found in North America and worth many thousands of dollars. It is of good color. When last heard of, it was on exhibit in the U.S. National Museum in Washington, D.C.

The discovery was made on a vacant lot at his home in Peterstown in southern West Virginia. The point of discovery is only a few hundred yards east of the Va. - W. Va. line.

Moral:-A pitch in the right direction is a good pitch.

Crystals are where you find them.

Near Fonda, N.Y., beautiful gemmy quartz crystals have been found on top of the dirt mounds at woodchuck holes. The mounds were made by the little animals when digging their holes. One day a collector curious to know what might be found in the mounds, examined some of them and to his astonishment found many fine quartz crystals lying exposed—all ready to be picked up. Within an hour he picked up crystal valued at over $50.

Moral:-Crystals are where you find them.

Just one more whack

On Sat., May 14, 1932, the Editor of R&M visited one of the many emery mines near Peekskill, N.Y., with two brothers, George and Charles Dietz of Peekskill. The mine had been abandoned for years and its exact location was not known to the Editor but was to George. Unfortunately the brothers knew nothing about minerals but they did like to roam through the woods. George soon borrowed the Editor's mineral hammer and proceeded to whack every rock along the way much to the annoyance of the Editor who was most anxious to reach the mine. Finally the Editor began to grumble.

"Just one more whack," said George who proceeded to whack off a corner of a nearby ledge.

"See, what is this?" said George handing the specimen to the Editor.

"It's nothing but common rock," was the answer, as the specimen, carelessly glanced at was handed back to George. "Throw it away, it is no good."

George, however, took the rock and examined it (the first one he gave any attention to). "Look", he suddenly exclaimed, "what is this blue mineral in it," pointing to it at the same time.

The Editor by this time was greatly annoyed by the great fuss being made over a common, uninteresting rock but to please George he took the specimen, gave the blue mineral one look and—his eyes opened in amazement. For the blue mineral was a nice crystal of sapphire—the first ever found around Peekskill. From that one locality many crystals of sapphires, worth hundreds of dollars have been taken.

Moral:-An experienced collector would never have given the uninteresting ledge even a second look but an amateur took a whack at it and look what happened.

Watch where you stand!

On June 29, 1932, the athletic field in Depew Park, Peekskill, N.Y., was being graded and improved. One day the Editor of R&M paid the site a visit in the hope some minerals might be found. No ledge was present on the site so the only thing that could be found might be pebbles. Going up to the man in charge the Editor asked if any pretty stones had been dug up and and was told that not a single rock had been seen. The Editor happened to look down and there right at the man's feet (he was almost standing on it) was a small dark red boulder, which he picked up. It was a jasper—the largest red jasper ever found around Peekskill—and when weighed later tipped the scales at 4 lbs. A number of collectors wanted to buy it—one offered $25 but it was never sold.

Moral--No rocks present but a collector found a small boulder worth $25.00.

Editor's Note: Contributions to this department will be greatly appreciated.

FIRST RESULTS OF AGE DETERMINATION OF FOSSIL WOOD IN POLAND BY RADIOCARBON METHOD

BY TOMASZ TURLEY
Chicago, Ill.

The radiocarbon method of dating age of fossil organic relics, developed first by Dr. W. F. Libby, University of Chicago, is used with good results in Quaternary geology and prehistory.

Recently in Acta Geologica Polonica a description is given of the first results of age determination of fossil wood in Poland by the radiocarbon (C^{14}) method obtained by the Physicist Dr. W. Moscicki/x in Institute of Experimental Physic at University of Poznan (Posen), Poland.

Measurements of radioactivity of Carbon dioxid from the burned I° fresh wood, 2° anthracite, 3° fossil, so called, black oak wood from the low or flood plain terrace on the Bug river by Tuchlin were made by means of a new technique, Dr. W. Moscicki's counts allow to estimate the age of the fossil oak wood as 65 years /xx. Detail description of the apparatus, constructed by W. Moscicki will be published in Acta Physics Polonica.

x/Acta Geological Polonica, edition of Polish Academy of Sciences, Warsaw, v.3, 1953 pp. 145-147. Original in Polish. Summary in English. 3 references, exclusivly, the publication of Dr. Willard F. Libby, Dr. E. C. Anderson and Dr. J. R. Arnold.

xx/It is interesting to note, that Prof. A. Holmes has described also the finding of relics of oak in the sediments of the low terrace of river Thamses (Principles of phys. geology 1945, p. 195).

WHERE TO GET IT

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Dinosaur bone, beautiful gem quality 50c lb. Red lace agate $1.00 lb. Postage extra. Special rates to dealers. **E. K. Stephen, Rt. 2, Grand Junction, Colo.**

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BOOKS

OFFICE SPECIATIES, 2364 No. 58th Street, Seattle 3, Wash. Books for Gem Cutters and Collectors. Hobby Books. Each book the best in its field. Write for circular

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Mirror Polished Agate Gems in assorted M.M. sizes, 7 for $2.50, or 20 sq. in. of Gem Material slabs for $3.00 P.P. and F.E.T.I. **Versluis Gem Shop, 1956 Wabash, Denver 8, Colo.**

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